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WATER QUALITY REPORT 1996

METROPOLITAN DISTRICT COMMISSION

DIVISION OF WATERSHED MANAGEMENT

QUABBIN RESERVOIR WATERSHED
WARE RIVER WATERSHED

Executive Office of Environmental Affairs
Trudy Coxe, Secretary

Metropolitan District Commission
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Division of Watershed Management
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ACKNOWLEDGEMENTS

This report was prepared by the Quabbin Environmental Quality Section of the Metropolitan District Commission. The text was substantially written by Scott A. Campbell, Environmental Engineer. Special appreciation for his time and effort is extended to David Chandler, Environmental Health Inspector, for his work on compiling the 1996 data and development of figures used in this report. In addition, significant writing and comment was provided by the following MDC staff:

Robert Bishop, Environmental Analyst
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SUMMARY

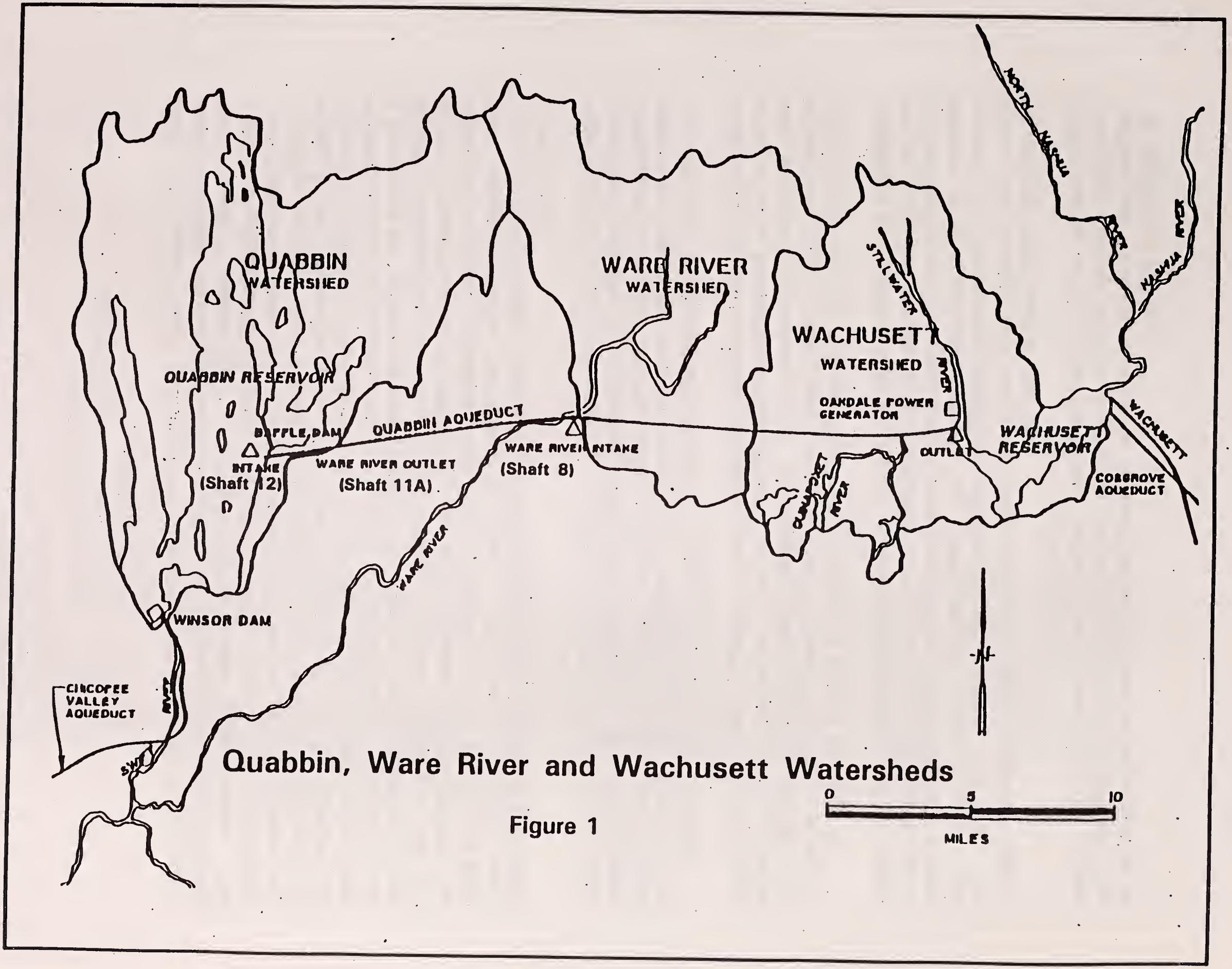
During 1996, water leaving the Quabbin Reservoir met all raw water quality criteria established under the Massachusetts Department of Environmental Protection/Federal Environmental Protection Agency (DEP/EPA) surface water filtration waiver. The DEP/EPA requires that 90% of water samples collected over a six month period maintain a fecal coliform concentration equal to or less than 20 colonies per 100 milliliters (ml). In addition, turbidity levels are not allowed to exceed 1 Nephlometric Turbidity Unit (NTU) without further demonstrating that the higher turbidity levels do not interfere with disinfection or microbiological determinations (310 CMR 22.20A). Fecal coliform levels monitored daily at the Chicopee Valley Aqueduct sample site (201-CVA Outlet) peaked at 9 colonies per 100ml on January 28 and 29. Turbidity levels monitored weekly remained consistently below the 1 NTU standard. However, sampling on the CVA pipeline conducted daily by the Massachusetts Water Resource Authority (MWRA), has shown that major storm events and excessive wind have the ability to influence water quality entering the intake. On October 21, following a three day span in which nearly 2 inches of rain had fallen, turbidity levels within the CVA were recorded by the MWRA above 0.6 NTU.

Water entering the Quabbin Aqueduct at Shaft 12 in Hardwick is monitored weekly through grab sampling conducted from the shoreline, adjacent to the intake building. Exceedences of the 20/100ml fecal coliform standard occurred at the Shaft 12 routine sample site in two consecutive weekly sampling runs on July 8 and 15. Turbidity levels averaged 0.3 NTU with only slight deviations detected throughout the entire year.

Fecal coliform levels monitored just downstream of Shaft 8 intake works in Barre averaged below the 20/100ml fecal coliform standard in seventeen samples collected during the allowable diversion period. Fecal coliform levels peaked on June 10 at 230 colonies per 100 ml. Turbidity levels during this period remained consistent, averaging 0.56 NTU with two exceedences of the 1 NTU standard on May 28 and June 10.

Precipitation and snowfall totals for this past year combined to make 1996 the wettest year on record for the state of Massachusetts. Locally, the 1996 precipitation total of 60.25 inches has only been surpassed in two years (1938 and 1955) since MDC initiated collection of hydrogeological data from the Enfield sampling station in 1930. Total snowfall at the Administration Building sample station topped the 100 inch mark at 105 inches. Due to heavy runoff, water was released from the Quabbin Reservoir spillway intermittently over a span of 182 days*.

* Water may be discharged into the spillway channel via either overtopping the spillway weir crest elevation of 530 feet or by manually removing eight inch boards set in the spillway weir to enable manipulation of the Quabbin Reservoir water levels down to an elevation of 528 feet.



Quabbin, Ware River and Wachusett Watersheds

Figure 1

1.0 INTRODUCTION

This report presents 1996 water quality data for monitoring conducted on the Quabbin Reservoir and tributaries thereto, including those within the Ware River watershed. Data includes results of physical, biological and chemical analysis of water collected from thirty-three routine sampling stations. Also included are results from seasonal Quabbin Reservoir depth sampling and site specific pollution sources investigated throughout the year. The data is used to assess compliance of tributaries and the Quabbin Reservoir supply with all applicable state and federal laws, monitor trends and changes resulting from outside environmental factors, and guide watershed management directives.

The Quabbin Reservoir is a 412 billion gallon impoundment of the Swift River located in Central Massachusetts. Quabbin serves as the principal supply of unfiltered drinking water to fourty-four communities in the Metropolitan Boston area and three Western Massachusetts communities. Water is delivered from the Reservoir via two tunnel systems, the Quabbin and Chicopee Valley Aqueduct (CVA), both of which are depicted in Figure 1. The Quabbin Aqueduct is a 24.6 mile tunnel that travels from midway up the eastern arm of Quabbin Reservoir at Shaft 12 in Hardwick, to the Oakdale Power Station located on the upper end of Wachusett Reservoir. The CVA is a 14.77 mile tunnel that runs from the southern end of Quabbin Reservoir at Winsor Dam to the Nash Hill Reservoir in Chicopee. In 1996, the Quabbin Aqueduct and CVA each supplied on average 208.1 and 8.82 million gallons per day (MGD) respectively*.

Water from the Ware River watershed may be diverted west from the Shaft 8 intake structure in Barre, to the Quabbin Reservoir outfall location at Shaft 11A, east of the baffle dams in Hardwick. Elevation differences between the three waterbodies allow Ware River water to be diverted along the single aqueduct tunnel, in both an easterly (towards Wachusett Reservoir) or westerly (towards Quabbin Reservoir from Ware River) direction using gravity flow. Baffle dams, erected in Quabbin Reservoir west of Shaft 11A, force Ware River water to travel several miles before reaching the outlet at Shaft 12. Ware River water diversions are limited to periods when flow exceeds 85 MGD within the river and require prior DEP approval unless conducted during the allowable diversion period from October 15 to June 15. In 1996, 2,384.4 million gallons of water was diverted from January 29 to February 4.

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* Averages reflect only those days in which flow was leaving the Quabbin Reservoir. In the case of the CVA, water was diverted each day of the year. However, flows to Wachusett Reservoir via the Shaft 12 intake were only diverted a total of 140 days. Refer to Table 6 for additional facts on Quabbin Reservoir trends.

2.0 WATER QUALITY SAMPLING PROGRAM

The 1996 sampling program was modified as one sample site location, Petersham Brook (216E-1), was discontinued as a routine sample site. All other locations, sampling frequencies, and methodologies remained unchanged. A total of twenty streams and seven ponds located throughout the two watersheds, and, five sites located on or representing water withdrawn from Quabbin Reservoir were routinely sampled to characterize the quality of water*. Laboratory staff utilize grab sampling techniques to collect all routine samples. Sample collection is generally performed regardless of weather conditions, thereby providing a good representation of various flow conditions and pollutant loadings. Standard methods referenced in Table 3 are used for field sampling and laboratory analysis conducted in-house by Quabbin Laboratory staff.

The quality of water entering the two aqueduct systems is aggressively monitored through daily and weekly sample collection. Water is sampled daily for total and fecal coliform at a tap located off of the CVA, inside of the Winsor Power Station**. Water collected from the shore adjacent to the Shaft 12 intake building serves to represent water entering the Quabbin Aqueduct. The Shaft 12 site is monitored weekly for coliform bacteria. Both aqueduct sample stations are monitored weekly for temperature, dissolved oxygen, alkalinity, pH, specific conductance and turbidity. In addition, color, chloride, hardness, total and fixed solids, and iron are analyzed on a quarterly basis.

Tributary sample sites are monitored on a bi-monthly basis for total and fecal coliform, alkalinity, pH, specific conductance and turbidity. Analysis is also performed quarterly for color, chloride, hardness, total and fixed solids, and iron. Temperature and dissolved oxygen levels are determined in the field during grab sampling, using a YSI Model 57 dissolved oxygen meter.

During the months of April through November, laboratory staff utilized a Hydrolab Surveyor II field instrument to determine monthly reservoir depth profiles for temperature, pH, dissolved oxygen, and specific conductance. In addition, grab samples were collected to determine surface and mid-depth epilimnion coliform bacteria levels.

Revet Laboratory in Framingham, Massachusetts, provided contract laboratory services for the DWM to perform nutrient, metal and volatile organic compound analysis on special samples collected during the year. In 1996, no annual nutrient and metal samples were conducted on tributary or reservoir supplies. Sections 6.3 and 6.4 should be referenced for results of special samples sent to Revet Laboratory.

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* A complete listing of sample sites can be found in Tables 1 & 2. Sampling Stations are depicted in Figures 2 & 3 on pages 5 and 7.

** Daily sampling of the 201 CVA Outlet station constitutes AM collection Monday thru Thursday. Sampling is increased to AM (4 days/week) and PM (daily) during phases of the *Gull Control Program*. In 1996, AM/PM sample collection commenced on January 2nd and continued until April 25. During this time, AM/PM sampling was interrupted due to brief periods of ice cover beginning on January 9 (lasting 11 days) and February 5 (lasting 21 days). AM/PM sampling was reinstated on October 21 signaling the start of the next Gull Control season.

QUABBIN WATERSHED

1996 SAMPLE SITES

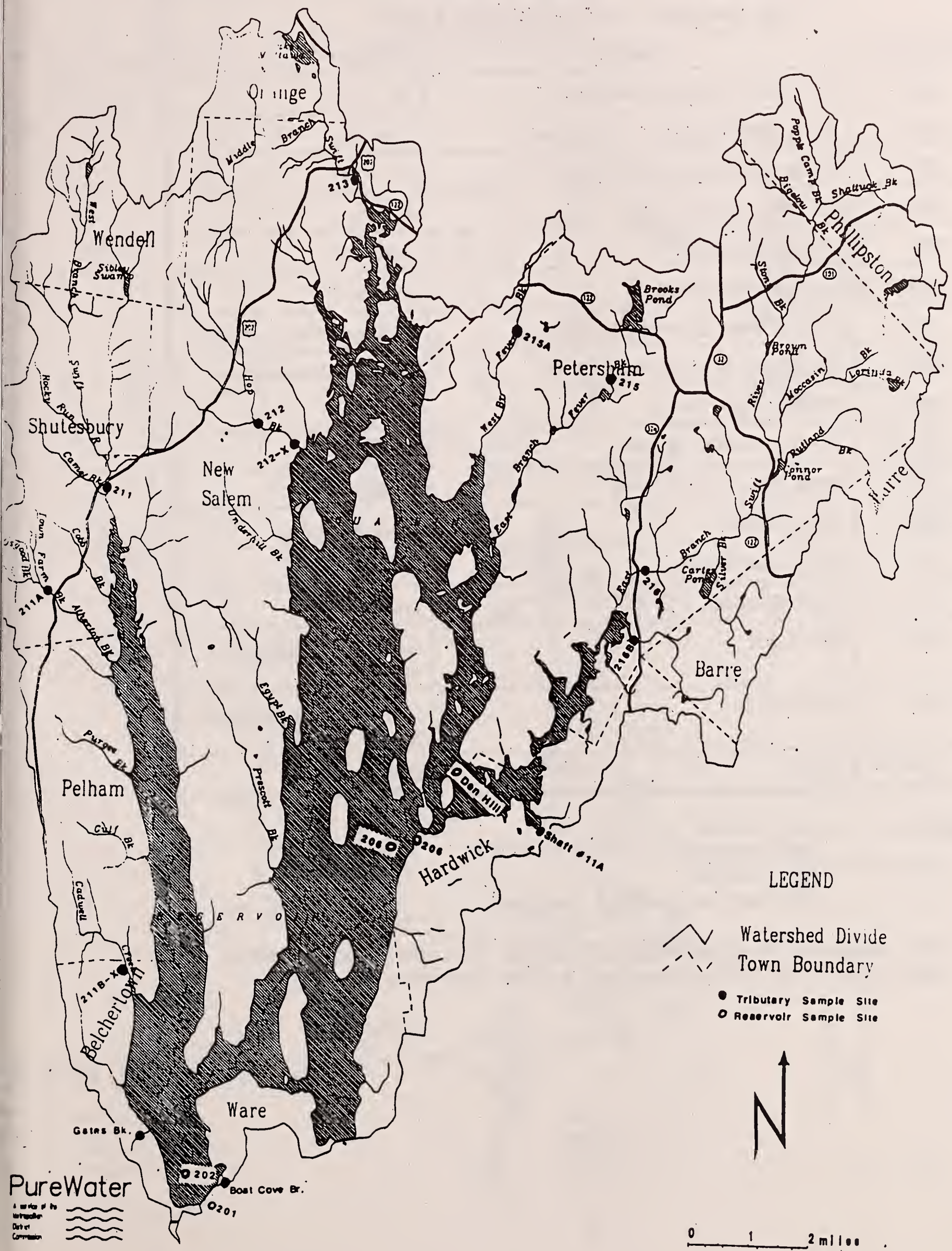

Table 1
1996 Quabbin Tributary Sampling Stations

Frequency	Station	Location
BM	(211) West Branch Swift River	Rt. 202
BM	(213) Middle Branch Swift River	Gate 30
BM	(216) East Branch Swift River	Rt. 32A
BM	(211BX) Cadwell Creek	At mouth
BM	(212) Hop Brook	Gate 22
BM	(212X) Hop Brook	At mouth
BM	(215A) West Branch Fever Brook	Womens Fed. Forest
BM	(215) East Branch Fever Brook	West St. Petersham
BM	(216B) Rand Brook	Rt. 32A
BM	(211A) Atherton Brook	Rt. 202
BM	Boat Cove Tributary	Quabbin Park
BM	Gates Brook	Gate 5/mouth
W	(206) Quabbin	Shaft 12
D	(201) Quabbin	Outlet
M	QR01/202	West Arm opposite Winsor Dam
M	QR06/206	Quabbin Lake/opposite Shaft 12
M	QR10	Off Den Hill

Frequency:
W = weekly
BM = bimonthly
M = monthly
D = daily Monday thru Thursday

note: QR designates Quabbin Reservoir sample sites where depth profiles are determined during the months of April through November.

WARE RIVER WATERSHED

1996 SAMPLE SITES

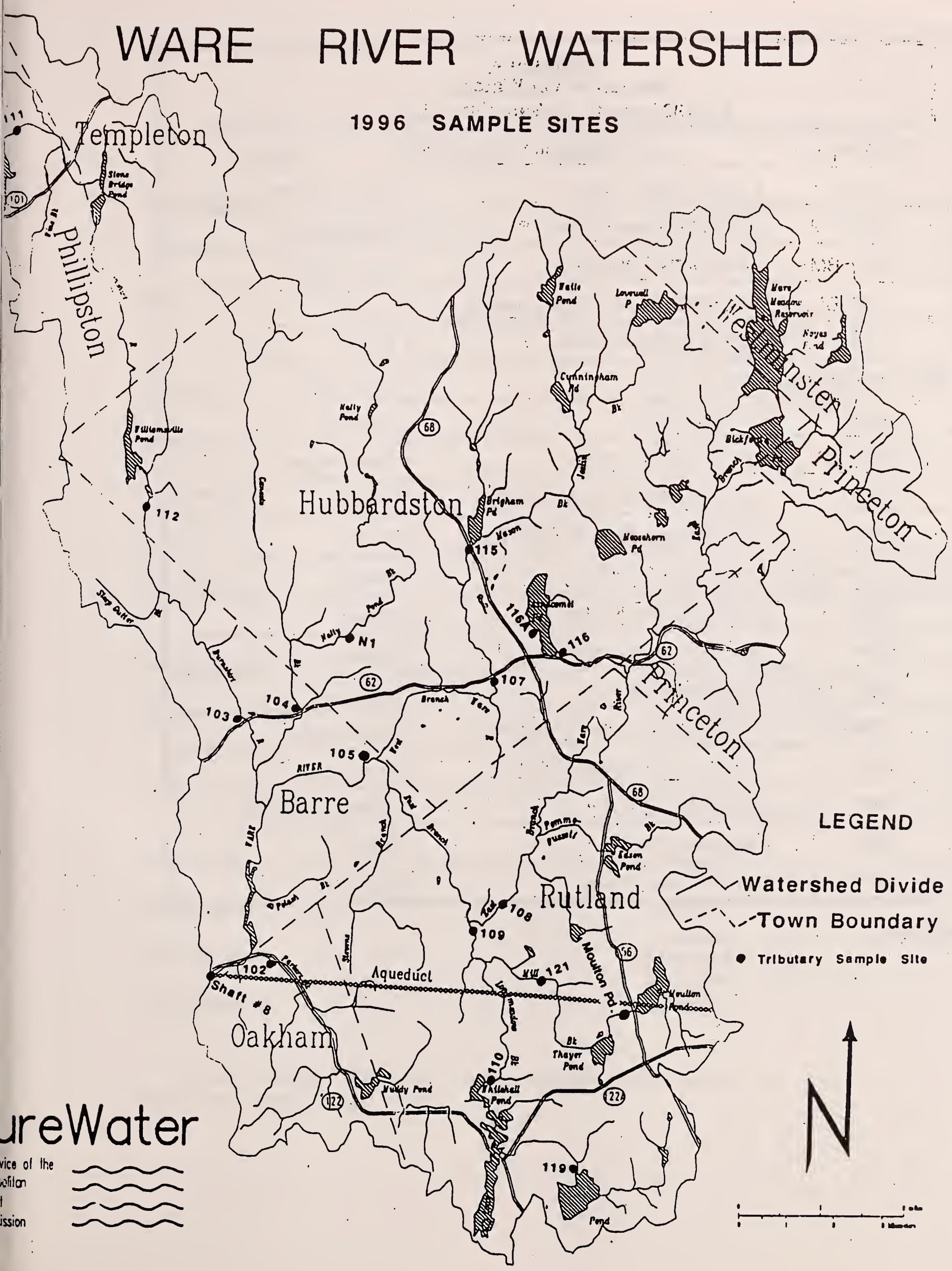

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Table 2
Ware River Watershed
1996 Tributary Sampling Stations

Frequency	Station	Location
BM	(111) Queen Lake	Road culvert
BM	(112) Burnshirt River	Williamsville
BM	Natty Pond Brook	Hale Road
BM	(104) Canesto & Natty Brooks	Rt. 62
BM	(103) Burnshirt River	Rt. 62
BM when flowing	Ware River	Shaft 11A
BM	Ware River	Shaft 8
BM	(102) Parker Brook	Near mouth
BM	(110) Long & Whitehall Pond	Outlet
BM	(107) West Branch Ware River	Rt. 62
BM 7/13 thru 8/24	Asnacomet Pond	Beach
BM	(115) Brigham Pond	Outlet
BM	(116) Asnacomet Pond	Outlet
BM	(105) Ware River	Barre falls
BM	(108) East Branch Ware River	New Boston
BM	(109) Longmeadow Brook	Near mouth
BM	(121) Mill Brook	Charnock Hill Rd
BM	Moulton Pond	Outlet
BM	(119 Demon Pond	Outlet

Frequency:
W = weekly
BM = bimonthly
M = monthly

TABLE 3

METHODS USED FOR FIELD AND LABORATORY ANALYSIS
QUABBIN LABORATORY

PARAMETER	STANDARD METHOD
Turbidity	SM 2130 B
pH	SM 4500-H+ B Hydrolab Surveyor II Orion 811 meter
Alkalinity	SM 2320 B (low level)
Chloride	SM 4500-Cl C
Hardness	SM 2340 C
Color	SM 2120 B
Conductivity	HACH DREL/5 meter Hydrolab Surveyor II
Temperature	YSI Model 57 DO meter Hydrolab Surveyor II
Dissolved Oxygen	YSI Model 57 DO meter Hydrolab Surveyor II
Iron	HACH DR/3 Spectrophotometer
Total Solids	SM 2540 B
Fixed Solids	SM 2540 E
Total Coliform	SM 9222B
Fecal Coliform	SM 9222 D

SM = Standard Methods for the Examination of Water and Wastewater - 18th edition, 1992

3.0 GENERAL DISCUSSION

Water quality data for each sample station has been attached and can be found in Appendix A, Sections 6.0 through 10.0. Provided below is a brief discussion on parameters analyzed and general observations made on trends evident in the results.

pH and Alkalinity

pH levels remained stable throughout the year. Sporadic fluctuations were evident with coinciding heavy precipitation and snowmelt events suggesting that fluxes were driven by the magnitude of acidic inputs.

For most sites, alkalinity levels peaked during the drier summer and early fall months and reached lows in the spring. These fluxes reflect a strong correlation between stream flow and acidic inputs, supported in previous findings from studies conducted throughout the Quabbin Watershed (Yuretich, 1992).

Alkalinity levels monitored at the two Reservoir stations, Shaft 12 shoreline and the CVA outlet, peaked at 6.6 and 4.8 respectively on December 16, 1996. Patterns of alkalinity levels in the Quabbin Reservoir deviate from those experienced in streams, remaining relatively unchanged throughout the year with only infrequent pulses. These pulses have been observed in the past at various times throughout the year, but remain unexplained. The most recent wintertime pulse occurred on December 18, 1989 when alkalinity levels at Shaft 12 reached 7.5.

Color, Temperature and Iron

While no direct correlation existed between color, iron and temperature levels, each of these parameters experienced peaks during the summer months when flows were at their minimums and air temperatures peaked. A study conducted on Natty Pond Brook in Hubbardston examined these parameters more closely and considered the effects of wetland environments on stream water chemistry (Suurballe, N.C., 1992). Researchers attributed increased color and iron loads to peat water discharges and found that water quality effects were directly related to the residence time of water within the wetland reach.

Sample sites that experienced elevated peaks in these parameters included Natty Pond Brook (N1), West Branch Ware at Route 62 crossing (107), Barre Falls Dam (105), Longmeadow Brook (109), East Branch Fever Brook (215) and West Branch Fever Brook (215A)*. Not surprising, four of the six sites listed above fall within the Ware River watershed, where it has been estimated that of the 61,737 acres of watershed land, 11.4% is of wetland variety. In contrast, the Quabbin watershed contains an estimated 4.4% of wetland coverage in its 119,934 acres of watershed land**.

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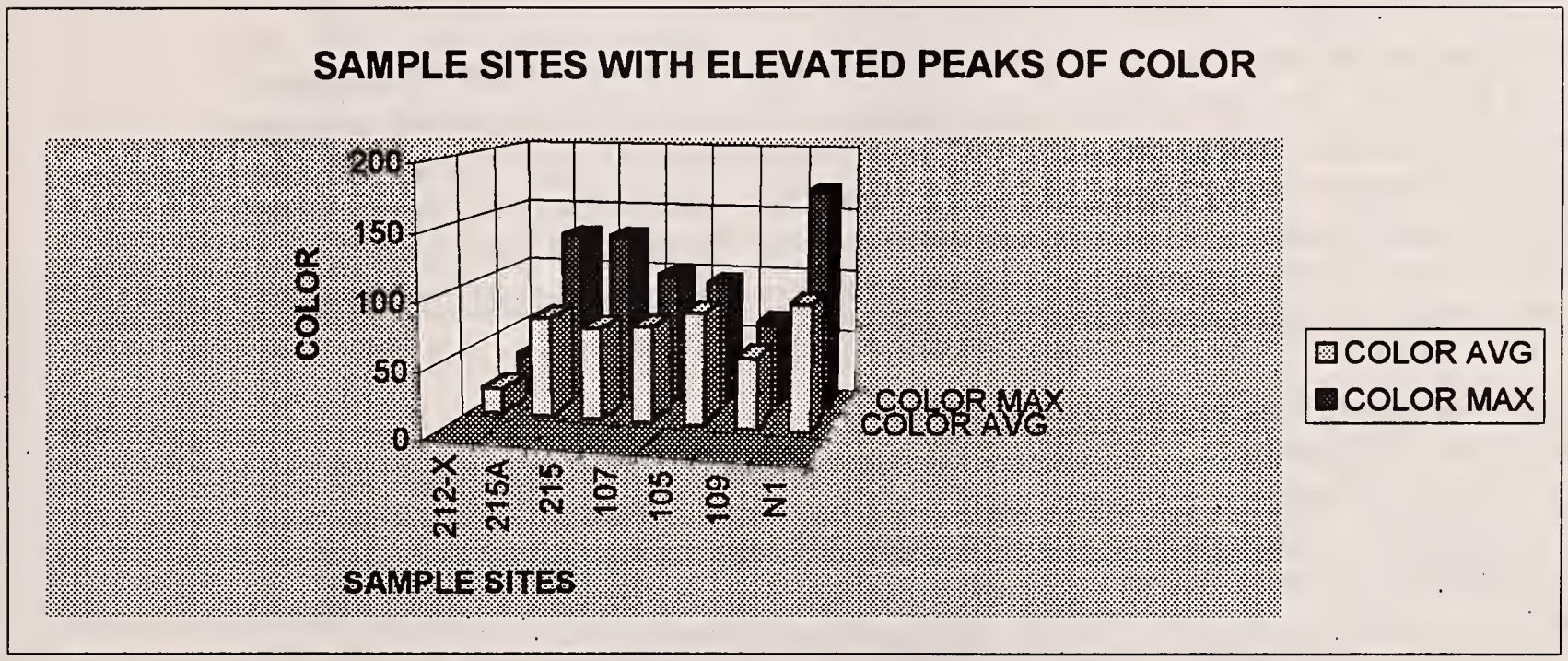
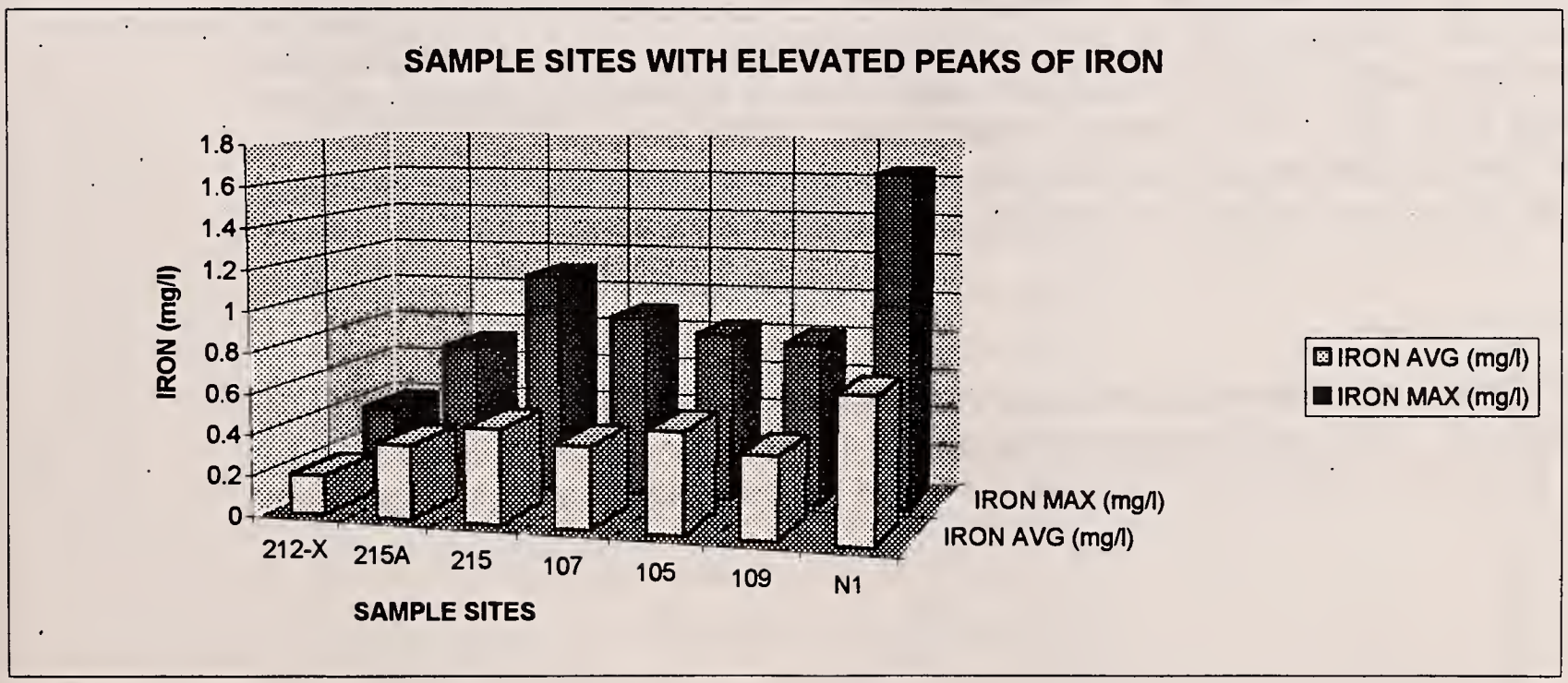
* Reference Table 4, Color and Iron Profiles, found on Page 11.

** Estimate of wetland coverage excludes open water. Data was obtained from Massachusetts GIS database.

TABLE 4 - COLOR AND IRON PROFILE

SELECTED SAMPLE SITES	*212-X*	*215A*	*215*	*107*	*105*	*109*	*N1*
COLOR AVG	19	76	70	73	85	53	95
COLOR MAX	30	130	130	100	95	65	170
IRON AVG (mg/l)	0.19	0.36	0.46	0.4	0.49	0.4	0.7
IRON MAX (mg/l)	0.38	0.72	1.1	0.9	0.83	0.8	1.65





**NOTE: SAMPLE SITE 212-X ADDED FOR COMPARISON

Coliform Bacteria

Bacteria results are used as indicators of possible fecal contamination. Conditions affecting concentrations can vary greatly depending upon stream temperature, flow conditions and pollutant loading. In 1996, the Middle Branch Swift River experienced the highest fecal coliform bacterial level recorded at 2,500 colonies/100ml.

Dissolved Oxygen

Oxygen levels are critical to fish and other aquatic life, who require adequate levels for respiration. Oxygen also plays an important role in the biodegradation of organic loads on streams. Like bacteria, conditions affecting concentrations can vary greatly depending upon stream temperature, flow conditions (reaeration potential) and pollutant loading. Among the streams monitored, dissolved oxygen in Natty Pond Brook depleted to the lowest levels recorded at 2.7 mg/l (29% saturation) on July 22.

Solids and Turbidity

While no direct correlation exists between levels of solids and turbidity, the two parameters experienced similar trends throughout the year. Water samples are analyzed quarterly for turbidity, total and fixed solids content. Tables 5a and 5b list average concentrations of solids found across the two watersheds and includes a breakdown on the average percentage of inorganic matter*. In the Quabbin Watershed, the average concentration of inorganic matter ranged from 57% (both Rand Brook and East Branch Swift) to 79% (Hop Brook). Ware River Watershed results were slightly lower with a range of 46% (Brigham Pond) to 77% (Long and Whitehall Pond).

Chloride, Hardness and Specific Conductance

Unlike the other parameters discussed above, chloride, hardness and specific conductance levels failed to experience large fluctuations in seasonal highs and lows, remaining relatively constant throughout the year. Chloride levels were studied more closely in a USGS study on the West Branch Swift River and East Branch Fever Brook (Rittmaster, R.L. and Shanley, J.B., 1995). Researchers attributed the lack of seasonal fluxes to the gradual recharge of streams with groundwater that had become concentrated with chlorides due to application of road deicing salts. The study also found that deicing salts increased total ionic output flux by 41 and 120 percent at West Branch Swift River and Fever Brook respectively. Researchers warned that the accelerated loss of calcium and magnesium, the two primary ions that measure water hardness, threatens soil fertility and undermines its defense against acidic deposition.

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* Solid content expressed as the percent fraction of inorganic solids vs. total solid content (i.e. Total solids represents sum of all inorganic and organic solids). Total and fixed solid values were averaged over the course of the year for comparison.

TABLE 5a Average Content of Inorganic Matter in Tributaries of the Quabbin Watershed			
Station	AVG Total Solids	AVG Fixed Solids	% of Inorganic Matter
(211) West Branch Swift River	36	25	69
(213) Middle Branch Swift River	51	35	71
(216) East Branch Swift River	47	22	57
(211BX) Cadwell Creek	32	22	69
(212) Hop Brook	59	44	79
(212X) Hop Brook	52	40	77
(215A) West Branch Fever Brook	59	35	60
(215) East Branch Fever Brook	59	36	61
(216B) Rand Brook	47	22	57
(211A) Atherton Brook	33	23	79
Boat Cove Tributary	52	36	69
Gates Brook	29	19	66
(201) Quabbin Outlet	27	19	70
(206) Shaft 12	27	17	63

TABLE 5b Average Content of Inorganic Matter in Tributaries of the Ware River Watershed			
Station	AVG Total Solids	AVG Fixed Solids	% of Inorganic Matter
(111) Queen Lake	48	28	58
(112) Burnshirt River	39	19	49
Natty Pond Brook	51.8	25.5	49
(104) Canesto & Natty Brooks	45.3	25.5	56
(103) Burnshirt River	38	20	53
Shaft 8	48	28	58
(105) Ware River	52.3	26.3	57
(102) Parker Brook	48	45.5	70
(110) Long & Whitehall Pond	80.3	62.0	77
(107) West Branch Ware River	45	20	49
(115) Brigham Pond	39	19	49
(116) Asnacomet Pond	23	12	52
(108) East Branch Ware River	44	25	57
(109) Longmeadow Brook	70.8	50.3	71
(121) Mill Brook	83.0	61.3	74
Moulton Pond	63.5	40.3	63
(119 Demon Pond	48.5	30.5	63

Table 4a & 4b. Average concentration of inorganic matter.

4.0 SPECIAL SAMPLING

Provided below is a brief overview DWM investigations to site specific sources of pollution. All results of field studies are included in Section 9.0, Special Investigations.

GIARDIA SPP. AND CRYPTOSPORIDIUM SPP. OCCURRENCE

During the months of March through December, thirty-six water samples were collected on a bimonthly basis to investigate the occurrence of giardia and cryptosporidium (oo)cysts within the environment. Sample collection was focused on those areas in the immediate vicinity of water supply intake structures. Water sample collection sites included the CVA intake (site 201), the Reservoir shoreline surrounding the CVA intake, streams that discharge into the Winsor Dam basin, and Ware River below the Shaft 8 intake works. Of those thirty-six samples, twenty-three were collected from the CVA intake (201 sample site), two from the Reservoir rip rap shoreline, two from Quabbin tributaries, and eight from Ware River. Samples are collected following the protocol from Standard Methods, 19th Edition, 1995, and from the Draft Analytical Guidance Manual for the Information Collection Rule (ICR), US EPA, 1995. Equipment includes a portable water filtering unit equipped with a flowmeter, battery powered pump, polypropylene-wound cartridge filter (1um), and clear laboratory tubing. The volume of water filtered will vary depending upon sediment content and time constraints, however the target sample size is between 50 to 100 gallons.

Samples were analyzed by two private laboratories, Morrell Associates in Marshfield, Massachusetts and Erie County Water Authority out of New York. Both laboratories follow standard Immunofluorescence Antibody procedures outlined by the EPA in the proposed Information Collection Rule*. Erie County laboratory deviates from this method by directly applying the packed pellet to a well slide, rather than filtering the floated pellet and concentrating prior to staining. Using both pellet preparation methods has been found in some cases to be equivalent (Dittmer, personal conversation), while, significantly higher recovery rates using the direct slide method have been reported elsewhere (Clancy, J.L., Fricker, C.R). Results are expressed as (oo)cysts found to be presumptive and confirmed. (Oo)cyst viability and infectivity are not determined using this procedure. Accuracy of results (detection limits) ranged from <0.53-<5.25/100L.

BROWN'S HILL TRIBUTARY

DWM staff collected seventy-nine water samples from nine sample sites located along this small tributary to the Middle Branch Swift River**. Samples were collected on a weekly basis over the course of thirteen weeks, starting September 25th and ending December 18th. Samples were analyzed for fecal coliform bacteria to study the impact to water quality in streams downgradient of the ten acre cattle pasture. As would be expected, results show that dispersion, persistence and concentration of bacteria were most strongly influenced by surface water runoff. Fecal coliform levels in the small headwaters of the stream closest to the bacterial source(s), ranged from 100 to 30,000 colonies/100ml. Roughly 2 1/2 miles downstream, at the confluence with the Middle Branch of the Swift River, fecal coliform levels ranged from 10 to 2500 colonies/100ml.

* Refer to the Federal Register, 59:28:6332, for details of analysis.

** Refer to map included on page 15 for delineation of pasture and sample sites.

Metropolitan District Commission
Division of Watershed Management

Brown's Hill Tributary

(Swift River – Middle Branch)

Sample Sites

Quabbin Tributary

Fence

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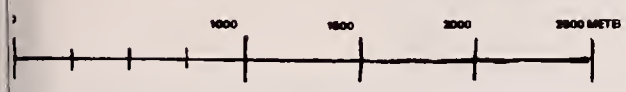

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DATA SOURCE

MASS GIS

Massachusetts Geographic Information System

Massachusetts Executive Office of Environmental Affairs - 1996

Map produced by P. Lamothe, December 10th, 1996

BOAT COVE TRIBUTARY

The Boat Cove Tributary is a small brook that empties into Quabbin Reservoir east of Winsor Dam. The contributing drainage area is owned exclusively by the MDC and maintained as open space for recreation and wildlife management. A fecal coliform level of 250 colonies/100ml in a routine sample collected on January 16 prompted a follow-up investigation and repeat sampling on January 18. During the time of repeat sampling, bacteria levels remained elevated (780 colonies/100ml at original site) with snow melt contributing to good flows seen within the brook. Based on a survey of the surrounding area, wildlife activity was the suspected source of the elevated levels. A complete report on survey findings is included in Appendix B, attached to this report.

GULLS

Division staff and graduate students from the University of Massachusetts attempted on several occasions to collect samples by boat from areas in which gulls had been roosting on the water. Crews attempted sample collection during pre-dawn hours following overnight roosting. Also, attempts were made in the evening hours, within a matter of 1-3 hours after the initial settling of the gulls onto the Reservoir. Results to date varied and were often inconsistent due to the inability to accurately locate the precise gull roosting area.

The DWM continued, as a component of its *Gull Control Program**, daily morning and evening sampling of water entering the Chicopee Valley Aqueduct. Aggressive monitoring of water entering the CVA outlet allows for the evaluation of gull harassment efforts and provides guidance on management directives.

COPPER SULFATE APPLICATION

On August 21, the MWRA applied copper sulfate to Quabbin Reservoir surrounding the Winsor Dam and CVA intake area. The action was in response to taste and odor complaints reported by water customers serviced by the Chicopee Valley Aqueduct. Immediately following the single application, DWM staff initiated daily monitoring of and water sample collection at four sites downstream of the application area. Sample sites included: 1) the CVA Outlet routine sample site located inside the Power Station; 2) the CVA by-pass outfall on Swift River (i.e. bubbler); 3) the Swift River at Route 9 bridge crossing; 4) and, the spillway channel when flowing. A total of eighty-two samples were collected and analyzed for temperature and copper levels between August 21 and September 6. Copper analysis was performed by MWRA laboratories.

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* A separate report has been drafted detailing the results of the 1995-96 Gull Control Program.

5.0 CONCLUSIONS

- Water leaving the Quabbin Reservoir met all raw water quality criteria for the surface water filtration waiver established under the DEP/EPA Surface Water Treatment Rule.

- Most parameters analyzed in tributary supplies exhibited seasonal trends with precipitation inputs, stream flow and runoff characteristics attributable to observed fluxes.

- Sampling on the Brown's Hill Tributary revealled that concentrations of fecal coliform bacteria extended for several miles at levels exceeding 1,000 colonies/100ml. As would be expected, a strong correlation was evident between elevated bacterial levels and heavy precipitation preceding sampling.

- Previous studies (Suurballe, N.C., 1992 and Yuretich, 1992) were referenced to support theories used in this report to explain trends in results of chemical parameters monitored. A statistical analysis to substantiate these theories was beyond the scope of this report.

TABLE 6
RESERVOIR FACTS AND FIGURES - 1996

Maximum Reservoir Elevation: 530.52 ft. - December 26th
Minimum Reservoir Elevation: 522.93 ft. - January 18th and 19th

Number of Days Flows Discharged Over the Spillway: 182 days; 4/17 to 8/16, 8/21 to 9/14 and 11/26 to 12/31

Ware River Diversions to Quabbin: 1/29/96 to 2/4/96, 2,384.4 million gallons

Average Daily Flow Entering CVA: 8.82 MGD
# of days in which water was taken: 366 days
Average Daily Flow Entering Shaft 12: 208.1 MGD
# of days in which water was taken: 140 days

Annual Snowfall on Quabbin Watershed (Admin. Bldg. Sampler): 105 inches
Annual Precipitation on Quabbin Watershed (Admin. Bldg. Sampler): 60.25 inches
Mean Rainfall Event (1990-95 Admin Bldg records): 0.40 inches
Mean Annual Precipitation Enfield/Admin. Bldg. records 1930-94: 46.10 inches

Reservoir Ice Cover:
Winsor Dam Iced Over: January 9th, February 4th
Entire Reservoir Opened Up: January 19th, April 1st

APPENDIX A

WATER QUALITY DATA TABLES

MDC QUABBIN LABORATORY REPORTING UNITS

Parameter	Unit
Depth	meters
Dissolved Oxygen	mg/l
Temperature	degrees centigrade
Specific conductance	micromhos per cm
pH	standard units
Turbidity	NTU
Standard alkalinity	mg/l as CaCo3
Hardness	mg/l as CaCo3
Alkalinity	mg/l as CaCo3
Color	color units
Fecal coliform bacteria	colonies/100 ml
Total coliform bacteria	colonies/100 ml
Nitrate-nitrogen	mg/l
Nitrite-nitrogen	mg/l
Kjeldahl-nitrogen	mg/l
Total phosphorus	mg/l
Chlorides	mg/l
Silica	mg/l
Aluminum	mg/l
Arsenic	mg/l
Copper	mg/l
Chromium	mg/l
Iron	mg/l
Lead	mg/l
Mercury	mg/l
Nickel	mg/l
Zinc	mg/l
Total organic carbon	mg/l
Oil and grease	mg/l
Volatile organics	micrograms/l
Solids	mg/l

6.0 QUABBIN RESERVOIR TRIBUTARIES

WATER QUALITY DATA

QUABBIN LABORATORY RECORDS 1996
(206) QUABBIN RESERVOIR @ SHAFT #12

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
1	01/02	0.3				6.5	3.9	2.7	12.2	88	2				42	2	0	
43	01/16	0.3				6.5	4.2	2.6	10.5	72	0				42	2	0	
85	01/22	0.2				6.5	4.4	2.4	12.5	88	1				42	5	0	
103	01/29	0.3				6.5	4.2	2.4	12.5	88	1				48	1	0	
144	02/05	0.3				6.5	4.2	2.3	12.9	88	0				42	1	0	
149	02/12	0.2	5	5.8	14.2	6.5	4.2	2.7	13.3	91	0	26	18	0.03	42	0	0	
182	02/20	0.2				6.5	4.1	2.2	12.8	90	1				42	0	0	
187	02/26	0.2				6.5	4.1	2.2	12.2	86	1				42	2	0	
232	03/04	0.2				6.5	4.2	2.6	12.7	89	1				42	1	0	
246	03/12	0.2				6.4	3.8	2.1	13.0	91	1				42	0	0	
282	03/18	0.3				6.4	3.9	2.6	12.7	92	2				42	0	0	
302	03/25	0.2				6.5	4.2	2.9	12.5	93	3				42	1	0	
347	04/01	0.3				6.5	4.1	2.4	12.3	92	3				42	2	0	
362	04/08	0.3				6.6	4.0	2.5	11.8	91	4				42	7	0	
409	04/16	0.3				6.5	4.0	2.4	12.4	95	4				42	1	0	
422	04/22	0.3				6.5	4.1	2.7	12.3	104	8				42	1	0	
497	04/29	0.3				6.6	4.4	3.0	11.6	96	7				42	2	0	
504	05/06	0.3	5	5.0	9.6	6.5	4.4	3.2	12.0	94	5	25	11	0.03	42	13	0	
546	05/13	0.3				6.5	4.2	2.7	11.1	96	9				42	10	0	
554	05/20	0.3				6.6	4.3	2.8	11.9	112	13				42	3	0	
626	05/28	0.3				6.6	4.3	2.3	10.2	103	16				42	11	0	
633	06/03	0.3				6.6	4.1	2.3	10.4	105	16				42	1	0	
666	06/10	0.3				6.6	3.9	2.3	9.5	96	16				42	4	1	
680	06/17	0.3				6.6	4.1	2.7	8.6	97	22				42	4	0	
788	06/24	0.3				6.6	4.3	2.9	8.7	95	20				42	4	2	
812	07/01	0.3				6.7	4.4	2.7	9.0	98	20				42	21	1	
826	07/08	0.3				6.6	4.0	2.1	8.3	94	22				42	45	33	
854	07/15	0.3				6.6	4.0	2.4	8.1	95	24				40	50	41	
962	07/22	0.3				6.6	4.2	2.6	8.4	95	22				42	3	1	
987	07/29	0.3				6.6	4.1	2.8	8.1	93	23				42	8	3	
1012	08/05	0.3				6.6	4.1	2.9	8.0	94	24				42	12	2	
1036	08/12	0.3	5	5.5	10.3	6.6	4.3	3.2	8.3	95	23	28	17	0.03	42	5	2	
1163	08/19	0.3				6.5	4.2	3.0	7.9	91	23				42	30	5	
1168	08/26	0.3				6.6	4.2	2.9	7.9	92	24				42	15	0	
1199	09/03	0.3				6.6	4.3	3.0	8.0	92	23				42	6	0	
1203	09/09	0.3				6.6	4.2	2.8	8.5	96	22				42	4	0	
1240	09/16	0.3				6.6	4.2	2.6	8.2	91	21				42	4	0	
1246	09/23	0.3				6.6	4.4	2.4	8.7	93	19				42	24	0	
1373	09/30	0.3				6.7	4.4	2.2	8.8	91	17				42	18	0	
1382	10/07	0.3				6.6	4.4	2.5	8.9	90	16				42	2	0	
1429	10/15	0.3				6.6	4.3	2.3	9.4	91	14				42	31	0	
1440	10/21	0.3				6.5	5.2	3.2	8.5	82	14				43	23	1	
1490	10/28	0.3				6.5	4.8	2.7	9.1	88	14				42	50	0	
1546	11/04	0.3	5	6.2	10.3	6.6	4.7	2.6	9.5	86	11	28	20	0.04	42	11	0	
1600	11/12	0.3				6.5	5.9	4.0	9.5	86	11				42	18	0	
1658	11/18	0.3				6.5	4.9	3.3	9.7	86	10				42	14	0	
1710	11/25	0.3				6.5	4.9	2.7	10.2	86	8				42	5	0	
1727	12/02	0.3				6.5	4.8	3.0	11.1	94	8				42	38	0	
1777	12/11	0.3				6.5	5.8	3.8	10.8	87	6				43	5	0	
1785	12/16	0.3				6.5	6.6	4.7	9.5	76	6				42	2	0	
1838	12/23	0.3				6.5	6.3	4.6	10.9	88	6				47	5	0	
1847	12/30	0.3				6.5	4.7	2.7	11.8	92	5				42	12	0	
AVG.		0.3	5	5.6	11.1	6.55	4.42	2.76	10.3	92	11	27	17	0.03	42	10	2	
MAX.		0.3	5	6.2	14.2	6.7	6.6	4.7	13.3	112	24	28	20	0.04	48	50	41	(6.1)
MIN.		0.2	5	5.0	9.6	6.4	3.8	2.1	7.9	72	0	25	11	0.03	40	0	0	

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
2	01/02	0.3				6.5	4.1	2.7	11.0	86	5				43	2	0	
15	01/02																0	
16	01/03															3	0	
17	01/03																0	
18	01/04															7	0	
19	01/04																0	
20	01/05																0	
21	01/05																0	
22	01/06																1	
23	01/07																0	
40	01/09	0.3				6.5	3.9	2.4	12.4	87	1				42	0	0	
41	01/10															5	0	
42	01/11															1	0	
44	01/16	0.3				6.5	4.1	2.2	12.0	87	2				42	2	0	
59	01/17															3	1	
60	01/18															3	0	
66	01/19																0	
67	01/20																2	
68	01/21																0	
86	01/22	0.3				6.5	4.1	2.5	12.5	88	1				42	7	0	
87	01/22																0	
88	01/23															3	0	
89	01/23																3	
90	01/24															7	2	
91	01/24																5	
97	01/25															6	2	
98	01/25																5	
99	01/26																2	
100	01/26																5	
101	01/27																3	
102	01/28																9	
104	01/29	0.3				6.5	4.1	2.2	11.8	88	3				42	8	9	
117	01/29																7	
118	01/30															6	6	
119	01/30																7	
120	01/31															10	6	
121	01/31																3	
122	02/01															7	7	
123	02/01																2	
124	02/02																1	
125	02/02																0	
126	02/03																0	
127	02/04																1	
145	02/05	0.2				6.5	4.0	2.1	12.6	89	1				42	2	1	
146	02/06															1	1	
147	02/07															7	3	
148	02/08															4	3	
150	02/12	0.2	5	6.4	12.3	6.5	4.3	2.7	12.8	90	1	25	19	0.03	42	1	1	
163	02/13															3	0	
164	02/14															0	0	
165	02/15															1	0	
183	02/20	0.2				6.5	4.2	2.3	12.5	90	2				42	2	1	
184	02/21															1	1	
185	02/22															2	0	
186	02/23																1	

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
188	02/26	0.2				6.5	4.2	2.2	11.6	86	3				43	2	0
200	02/26																0
206	02/27															0	0
207	02/27																0
208	02/28															3	0
209	02/28																0
210	02/29															1	0
211	02/29																0
212	03/01																0
213	03/01																0
214	03/02																0
215	03/03																1
233	03/04	0.2				6.5	4.2	2.5	12.2	88	2				42	2	0
235	03/04																0
236	03/05															2	0
237	03/05																0
238	03/06															1	0
239	03/06																0
240	03/07															1	0
241	03/08															3	0
242	03/09																0
243	03/10																0
244	03/11															1	0
245	03/11																0
247	03/12	0.2				6.4	3.8	2.1	12.6		3				42	2	0
258	03/12																0
259	03/13															4	0
260	03/13																0
261	03/14															1	0
262	03/15																0
263	03/15																0
264	03/16																0
265	03/17																0
283	03/18	0.2				6.4	4.1	2.7	12.3	92	3				40	4	0
284	03/18																0
285	03/19															4	0
286	03/19																0
287	03/20															3	0
288	03/20																0
296	03/21															1	0
297	03/21																0
298	03/22																0
299	03/22																0
300	03/23																0
301	03/24																0
303	03/25	0.2				6.4	4.2	2.8	12.1	90	3				42	0	0
316	03/25																0
317	03/26															2	0
318	03/26															1	0
322	03/27															7	0
323	03/27															1	0
324	03/28															2	0
325	03/28																0
326	03/29																0
327	03/29																0

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
328	03/30																1
329	03/31																0
348	04/01	0.2				6.4	4.2	2.9	12.2	94	4				42	0	0
349	04/01																1
350	04/02															2	0
351	04/02																0
352	04/03															4	0
353	04/03																0
356	04/04															5	0
357	04/04																0
358	04/05																0
359	04/05																0
360	04/06																0
361	04/07																0
363	04/08	0.3				6.5	3.9	2.3	11.7	90	4				48	2	0
376	04/08																0
377	04/09															1	0
385	04/11															1	1
386	04/11																0
387	04/12																0
388	04/12																0
389	04/13																0
390	04/14																0
391	04/15																0
410	04/16	0.3				6.4	4.2	2.6	12.6	98	5				42	1	1
411	04/16																0
412	04/17															4	1
413	04/17																0
416	04/18															1	0
417	04/18																0
418	04/19																0
419	04/19																0
420	04/20																0
421	04/21																0
423	04/22	0.3				6.4	3.9	2.4	12.3	99	6				42	4	0
435	04/22																0
436	04/23															1	0
437	04/23																0
438	04/24															2	1
439	04/24																0
478	04/25															1	0
479	04/25																0
498	04/29	0.3				6.5	4.1	2.7	11.8	97	7				42	2	0
499	04/30															11	0
502	05/01															3	0
503	05/02															2	0
505	05/06	0.3	5	6.0	8.7	6.5	4.0	2.7	11.5	97	8	24	18	0.02	42	1	0
519	05/07															2	0
527	05/08															11	0
528	05/09															9	0
547	05/13	0.3				6.5	4.1	2.6	11.5	97	8				42	8	0
549	05/14															4	1
552	05/15															5	0
553	05/16															11	0
555	05/20	0.3				6.6	4.3	2.8	12.4	107	9				42	5	0

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
568	05/21															8	0
607	05/22															1	0
608	05/23															3	0
627	05/28	0.3				6.6	4.2	2.6	11.2	97	9				42	7	1
628	05/29															1	0
629	05/30															1	1
634	06/03	0.3				6.6	4.0	2.4	11.2	99	10				43	0	0
647	06/04															3	0
648	06/05															6	0
667	06/10	0.3				6.5	3.9	2.5	10.8	98	11				42	1	0
668	06/11															5	0
675	06/12															1	0
679	06/13															0	0
681	06/17	0.3				6.6	4.3	2.7	10.9	99	11				42	0	0
695	06/18															2	1
696	06/19															0	0
789	06/24	0.3				6.6	4.2	2.4	11.0	99	11				42	3	1
808	06/25															1	0
809	06/26															0	0
813	07/01	0.3				6.6	4.4	2.7	11.6	105	11				42	3	0
825	07/02															3	0
827	07/08	0.3				6.5	4.4	2.8	10.8	98	11				42	13	0
845	07/09															14	0
846	07/10															23	0
847	07/11															4	0
855	07/15	0.3				6.5	4.4	2.8	10.8	100	12				42	29	0
868	07/16															36	0
869	07/17															4	0
961	07/18															0	0
963	07/22	0.3				6.5	4.3	2.8	11.1	100	11				42	24	0
984	07/23															7	0
985	07/24															17	0
986	07/25															20	0
988	07/29	0.3				6.4	4.3	2.9	10.6	96	11				42	15	1
1003	07/30															11	0
1004	07/31															15	0
1005	08/01															13	0
1013	08/05	0.3				6.4	4.1	2.8	10.5	97	12				42	4	0
1033	08/06															5	1
1034	08/07															8	0
1035	08/08															3	0
1037	08/12	0.3	5	6.0	8.7	6.4	4.2	3.0	10.4	96	12	30	20	0.03	43	3	0
1051	08/13															2	0
1052	08/14															1	0
1145	08/15															3	0
1164	08/19	0.3				6.4	4.1	2.9	10.6	98	12				42	1	0
1165	08/20															4	0
1166	08/21															1	0
1167	08/22															4	0
1169	08/26	0.3				6.4	4.1	2.8	10.6	98	12				42	2	0
1182	08/27															3	0
1183	08/28															2	0
1200	09/03	0.3				6.4	4.3	3.0	10.9	101	12				42	0	0
1201	09/04															0	0
1202	09/05															0	0

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1204	09/09	0.3				6.5	4.2	2.7	11.0	104	13				43	1	0
1222	09/10															1	0
1223	09/11															1	0
1224	09/12															0	0
1241	09/16	0.3				6.5	4.0	2.4	11.0	104	13				42	3	0
1243	09/17															0	0
1244	09/18															25	5
1245	09/19															5	2
1247	09/23	0.3				6.5	4.3	2.7	9.3	94	16				42	1	0
1262	09/24															0	0
1263	09/25															3	0
1266	09/26															2	0
1374	09/30	0.3				6.5	4.6	2.4	9.2	89	14				42	3	0
1379	10/01															2	0
1380	10/02															1	0
1381	10/03															3	0
1383	10/07	0.3				6.3	4.4	2.4	8.8	85	14				43	0	0
1402	10/08															0	0
1403	10/09															4	1
1404	10/10															4	0
1430	10/15	0.3				6.5	4.2	2.2	9.1	90	15				42	1	0
1438	10/16															0	0
1439	10/17															0	0
1441	10/21	0.3				6.5	4.4	2.5	10.1	97	14				42	3	0
1455	10/21																0
1456	10/22															2	0
1457	10/22																0
1458	10/23															2	0
1459	10/23																0
1460	10/24															4	0
1461	10/24																0
1469	10/25																0
1470	10/25																0
1471	10/26																0
1472	10/27																0
1491	10/28	0.3				6.5	4.5	2.4	9.1	88	14				42	6	0
1492	10/28																0
1493	10/29															6	0
1494	10/29																0
1495	10/30															3	0
1496	10/30																0
1540	10/31															5	0
1541	10/31																0
1542	11/01																1
1543	11/01																0
1544	11/02																0
1545	11/03																0
1547	11/04	0.3	5	6.4	9.5	6.5	4.6	2.8	10.4	96	12	27	18	0.03	42	7	0
1560	11/04																0
1572	11/05															8	0
1573	11/05																0
1574	11/06															2	0
1575	11/06																0
1576	11/07															3	0
1577	11/07																0

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1578	11/08																0
1579	11/08																0
1580	11/09																0
1581	11/10																0
1582	11/11																2
1601	11/12	0.3				6.5	4.5	2.4	9.2	85	12				42	0	1
1603	11/12																0
1604	11/13															7	2
1605	11/13																0
1652	11/14															2	0
1653	11/14																0
1654	11/15															3	0
1655	11/15																0
1656	11/16																0
1657	11/17																1
1659	11/18	0.3				6.5	4.0	2.4	9.8	89	11				42	5	0
1673	11/18																0
1674	11/19															6	2
1675	11/19																1
1676	11/20															5	0
1677	11/20																0
1687	11/21															3	0
1688	11/21																0
1689	11/22															4	0
1690	11/22																2
1691	11/23																0
1692	11/24																0
1711	11/25	0.3				6.5	4.5	2.7	9.7	86	10				42	2	1
1712	11/25																0
1713	11/26															3	1
1714	11/26																1
1723	11/27																1
1724	11/29															3	0
1725	11/30																0
1726	12/01																0
1728	12/02	0.3				6.5	4.1	2.3	10.3	89	9				42	9	3
1742	12/02																2
1743	12/03															9	0
1744	12/03																1
1745	12/04															6	0
1746	12/04																1
1755	12/05															13	1
1756	12/05																1
1757	12/06																1
1758	12/06																1
1759	12/07																0
1760	12/10															13	0
1761	12/10																0
1778	12/11	0.3				6.5	4.8	3.0	10.4	88	8				42	2	0
1779	12/11																2
1780	12/12																0
1781	12/13																0
1782	12/13																0
1783	12/14																1
1784	12/15								(6.7)								0

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(201) QUABBIN RESERVOIR @ OUTLET BUILDING

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1786	12/16	0.3				6.4	4.8	3.0	10.6	89	8				42	5	0
1799	12/16																1
1804	12/17															3	0
1805	12/17																0
1814	12/18															8	2
1815	12/18																2
1816	12/19															3	1
1817	12/19																2
1818	12/20																1
1819	12/20																1
1820	12/21																2
1821	12/22																1
1839	12/23	0.3				6.5	4.5	3.2	10.8	89	7				42	7	0
1840	12/23																1
1841	12/26															3	0
1842	12/26																0
1843	12/27															1	2
1844	12/27																0
1845	12/28																0
1846	12/29																1
1848	12/30	0.3				6.5	4.3	2.4	11.1	89	6				42	5	0
1861	12/30																0
1862	12/31															6	1
AVG.		0.3	5	6.2	9.8	6.48	4.22	2.59	11.1	94	8	27	19	0.03	42	4	0
MAX.		0.3	5	6.4	12.3	6.6	4.8	3.2	12.8	107	16	30	20	0.03	48	36	9
MIN.		0.2	5	6.0	8.7	6.3	3.8	2.1	8.8	85	1	24	18	0.02	40	0	0

QUABBIN LABORATORY RECORDS 1996
(211) WEST BR. OF SWEFT RIVER -- RT. 202

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
3	01/02	0.2				6.1	3.2	2.1	12.4	87	1				48	36	0	
45	01/16	0.2				6.1	4.3	2.5	11.5	79	0				48	50	0	
105	01/29	0.3				5.6	2.6	0.8	13.0	91	1				42	18	2	
151	02/12	0.3	12	9.6	12.1	6.0	3.2	1.4	13.4	92	0	37	27	0.04	50	23	0	
189	02/26	0.3				5.7	2.5	0.8	12.0	87	2				47	22	0	
248	03/12	0.2				6.0	3.3	1.9	13.7	94	0				52	23	1	
304	03/25	0.2				6.0	2.5	0.9	12.7	92	2				52	22	0	
364	04/08	0.2				6.0	2.8	1.2	12.4	92	3				50	25	0	
424	04/22	0.2				6.0	2.6	1.5	11.2	95	8				52	50	0	
506	05/06	0.3	18	6.5	8.3	5.8	1.8	0.6	11.5	97	8	21	11	0.05	42	130	7	
556	05/20	0.2				6.1	2.6	1.4	10.8	100	12				48	70	0	
635	06/03	0.3				6.3	4.9	3.4	11.2	101	11				62	80	9	
682	06/17	0.3				5.8	2.5	0.6	8.8	89	16				38	80	17	
814	07/01	0.3				6.3	3.5	2.1	10.4	100	14				48	26	9	
856	07/15	0.4				5.6	2.1	0.7	8.8	92	18				35	180	20	
989	07/29	0.3				6.3	3.9	2.6	9.2	91	15				52	170	10	
1038	08/12	0.3	18	11.5	11.0	6.4	5.6	4.3	9.4	93	15	47	33	0.10	65	60	20	
1170	08/26	0.3				6.5	6.5	5.0	8.7	86	15				70	170	0	
1205	09/09	0.3				6.4	7.0	5.5	8.7	88	16				73	150	10	
1248	09/23	0.4				6.1	3.5	1.7	10.0	92	12				40	550	310	
1384	10/07	0.2				6.3	4.9	3.3	11.2	90	6				52	100	4	
1442	10/21	0.3				5.4	2.2	0.6	10.3	89	9				32	500	51	
1548	11/04	0.3	20	7.7	11.5	6.2	4.2	2.3	12.4	92	3	40	29	0.05	47	100	2	
1660	11/18	0.2				6.2	3.2	1.7	12.4	90	2				42	90	5	
1729	12/02	1.6				5.3	2.2	-0.1	12.2	95	5				30	90	59	
1787	12/16	0.3				5.8	2.4	0.6	12.4	92	3				38	65	1	
1849	12/30	0.2				5.9	3.3	1.2	12.6	94	3				38	44	0	
AVG.		0.3	17	8.8	10.7	6.01	3.46	1.87	11.2	92	7	36	25	0.06	48	108	20	
MAX.		1.6	20	11.5	12.1	6.5	7.0	5.5	13.7	101	18	47	33	0.10	73	550	310	
MIN.		0.2	12	6.5	8.3	5.3	1.8	-0.1	8.7	79	0	21	11	0.04	30	18	0	

QUABBIN LABORATORY RECORDS 1996
(213) MIDDLE BR.OF SWIFT RIVER @ GATE #30

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
4	01/02	0.4				6.1	6.6	5.2	10.8	76	1				60	23	6	
46	01/16	0.5				6.1	7.3	5.5	8.2	56	0				63	42	6	
106	01/29	0.4				5.8	3.2	1.3	12.1	85	1				52	38	5	
152	02/12	0.3	20	14.3	15.0	6.0	4.3	2.7	11.2	77	0	47	37	0.08	68	21	6	
190	02/26	0.3				6.0	3.3	1.6	11.6	84	2				52	31	5	
249	03/12	0.3				6.0	4.7	3.0	11.4	78	0				72	34	1	
305	03/25	0.3				6.1	4.6	3.3	11.0	82	3				68	50	3	
365	04/08	0.3				6.2	4.4	3.0	11.2	83	3				63	26	5	
425	04/22	0.4				6.1	4.6	3.1	7.5	68	11				80	26	18	
507	05/06	0.4	30	12.3	10.7	6.1	4.6	3.3	8.9	73	7	41	28	0.10	63	170	15	
557	05/20	0.5				6.2	6.4	5.2	7.2	72	16				70	65	40	
636	06/03	0.6				6.3	8.7	7.1	6.8	68	16				80	110	70	
683	06/17	0.6				6.1	6.1	4.2	5.0	54	19				60	200	100	
815	07/01	1.3				6.2	9.7	8.0	6.4	66	17				73	200	95	
857	07/15	0.6				5.8	5.2	3.5	3.5	38	20				48	350	100	
990	07/29	1.0				6.1	8.8	7.2	4.8	52	20				67	300	210	
1039	08/12	1.2	65	15.8	19.4	6.3	12.8	11.4	4.9	53	20	66	42	0.78	80	140	20	
1171	08/26	1.2				6.3	14.6	13.3	4.3	47	20				90	140	20	
1206	09/09	1.3				6.4	15.6	13.9	5.3	57	19				92	200	30	
1249	09/23	1.2				6.2	7.6	5.7	6.6	64	14				63	TNTC	2500	
1385	10/07	0.8				6.2	8.6	6.9	8.7	73	8				63	32	9	
1443	10/21	0.7				6.0	5.7	3.7	7.1	61	9				48	800	200	
1549	11/04	0.8	38	10.3	12.7	6.4	7.4	5.4	10.2	76	3	49	35	0.32	60	95	4	
1661	11/18	0.4				6.1	5.3	3.9	11.0	77	1				60	65	7	
1730	12/02	1.3				6.0	4.0	2.3	11.1	87	5				47	1000	300	
1788	12/16	0.4				6.0	4.0	2.1	11.4	85	3				52	80	16	
1850	12/30	0.4				6.1	4.6	2.3	10.8	80	3				57	50	8	
AVG.		0.7	38	13.2	14.5	6.12	6.77	5.11	8.5	69	9	51	36	0.32	65	464	141	
MAX.		1.3	65	15.8	19.4	6.4	15.6	13.9	12.1	87	20	66	42	0.78	92	TNTC	2,500	
MIN.		0.3	20	10.3	10.7	5.8	3.2	1.3	3.5	38	0	41	28	0.08	47	21	1	

9/23 Fecal Coliform result (with the average increase of 330%) was used for Total Coliform result in place of TNTC when calculating AVG.

QUABBIN LABORATORY RECORDS 1996
(216) EAST BR. OF SWIFT RIVER @ RT.32A

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. FECAL	ELEV. GAGE
5	01/02	0.4				6.4	4.2	2.7	12.6	89	1				63	60	0	
47	01/16	0.4				6.5	5.3	3.3	11.5	79	0				67	58	0	
107	01/29	0.4				5.7	2.2	0.8	12.8	90	1				50	31	10	
153	02/12	0.4	32	13.8	13.2	6.1	3.7	2.0	13.8	94	0	48	33	0.09	63	65	14	
191	02/26	0.3				6.0	2.9	1.2	12.8	90	1				52	44	3	2.00
250	03/12	0.3				6.2	3.7	2.5	14.2	97	0				62	26	1	
306	03/25	0.3				6.2	3.3	1.7	12.5	96	4				60	33	2	1.65
366	04/08	0.3				6.3	3.5	2.0	12.2	91	3				55	50	4	1.60
426	04/22	0.4				6.2	2.8	1.7	10.3	97	13				60	45	0	1.64
508	05/06	0.4	43	10.4	9.9	6.2	2.6	1.4	10.8	89	7	38	20	0.12	52	200	18	1.98
558	05/20	0.4				6.4	3.2	1.8	10.2	103	16				52	25	9	1.48
637	06/03	0.4				6.6	5.1	3.4	9.6	95	15				62	50	10	
684	06/17	0.5				6.5	5.4	4.0	8.2	89	20				52	110	22	1.17
816	07/01	0.5				6.6	6.1	4.7	9.4	97	17				60	60	10	0.70
858	07/15	0.7				6.0	3.2	1.6	8.3	90	20				38	300	100	2.00
991	07/29	0.5				6.5	5.4	4.2	8.6	92	19				57	190	10	0.93
1040	08/12	0.4	70	11.2	10.9	6.6	5.3	3.8	8.5	91	19	51	27	0.37	58	100	10	0.76
1172	08/26	0.7				6.7	7.6	6.4	8.4	92	20				62	120	20	0.67
1207	09/09	0.5				6.7	7.7	6.3	8.6	89	17				68	100	30	0.40
1250	09/23	0.7				6.5	4.5	2.6	9.8	95	14				52	400	90	1.38
1386	10/07	0.4				6.6	6.3	4.5	10.9	92	8				55	27	2	0.78
1444	10/21	0.6				6.1	3.5	1.9	10.6	94	10				48	400	31	2.25
1550	11/04	0.5	50	11.3	9.3	6.4	4.7	2.7	12.0	92	4	49	29	0.22	53	65	0	1.06
1662	11/18	0.3				6.3	4.4	2.7	12.6	91	2				52	80	3	1.30
1731	12/02	2.5				6.0	3.8	1.9	12.5	98	5				40	600	70	2.90
1789	12/16	0.3				6.2	2.7	0.8	12.5	93	3				50	80	0	2.20
1851	12/30	0.4				6.3	3.7	1.8	12.6	94	3				45	54	5	1.94
AVG.		0.5	49	11.7	10.8	6.33	4.33	2.76	11.0	92	9	47	27	0.20	55	125	18	
MAX.		2.5	70	13.8	13.2	6.7	7.7	6.4	14.2	103	20	51	33	0.37	68	600	100	
MIN.		0.3	32	10.4	9.3	5.7	2.2	0.8	8.2	79	0	38	20	0.09	38	25	0	

QUABBIN LABORATORY RECORDS 1996
BOAT COVE BROOK - NEAR MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
6	01/02/96	0.4				6.9	14.1	12.9	12.1	85	1				70	32	13	
48	01/16/96	0.5				6.9	15.8	13.9	12.7	87	0				70	300	250	
108	01/29/96	2.0				6.6	8.4	6.9	12.8	90	1				48	120	100	
154	02/12/96	1.2	25	7.3	20.0	6.8	10.4	8.9	13.6	93	0	48	35	0.12	55	100	47	
192	02/26/96	1.3				6.8	10.1	8.6	12.2	88	2				52	45	21	
251	03/12/96	0.5				6.9	11.9	10.4	13.9	95	0				58	10	3	
307	03/25/96	0.5				6.9	11.7	10.4	12.5	90	2				57	19	2	
367	04/08/96	0.5				7.0	12.2	10.8	12.5	93	3				60	25	6	
427	04/22/96	0.5				7.0	11.8	10.4	10.1	91	11				58	38	3	
509	05/06/96	0.5	33	6.6	16.3	7.0	12.5	11.0	10.4	94	11	55	36	0.10	55	180	2	
559	05/20/96	0.4				7.1	15.0	13.8	9.6	97	16				58	50	3	
638	06/03/96	0.3				7.0	19.0	17.4	9.3	88	13				67	50	2	
685	06/17/96	0.4				7.2	24.2	22.2	8.0	84	18				70	120	23	
859	07/15/96	0.7				7.0	21.6	19.6	7.8	85	20				63	TNTC	50	
992	07/29/96	0.3				7.1	29.7	28.2	7.9	81	17				82	260	0	
1251	09/23/96	0.8				7.1	17.4	15.3	9.4	91	14				70	TNTC	390	
1445	10/21/96	1.3				6.9	14.7	12.9	10.2	90	10				62	400	80	
1663	11/18/96	0.5				7.0	15.3	13.6	11.2	83	3				68	50	10	
1732	12/02/96	4.6				6.5	7.6	5.6	11.6	96	7				37	800	200	
1790	12/16/96	1.1				6.6	10.7	8.9	11.8	88	3				50	55	3	
1852	12/30/96	1.0				6.9	11.9	9.9	12.2	91	3				52	47	5	
AVG.		0.9	29	7.0	18.2	6.91	14.57	12.93	11.0	90	7	52	36	0.11	60	202	58	
MAX.		4.6	33	7.3	20.0	7.2	29.7	28.2	13.9	97	20	55	36	0.12	82	TNTC	390	
MIN.		0.3	25	6.6	16.3	6.5	7.6	5.6	7.8	81	0	48	35	0.10	37	10	0	

7/15 + 9/23 Fecal Coliform results (with the average increase of 349%) was used for Total Coliform result in place of TNTC when calculating AVG.

QUABBIN LABORATORY RECORDS 1996
GATES BROOK @ MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
7	01/02/96	0.2				5.6	1.4	0.1	12.7	92	2				32	55	0	
49	01/16/96	0.2				5.6	2.3	0.6	12.7	87	0				32	6	0	
109	01/29/96	0.3				4.9	1.0	-0.6	12.8	90	1				32	15	0	
155	02/12/96	0.2	10	6.8	9.0	5.1	1.4	-0.2	13.6	96	1	28	21	0.04	30	14	0	
193	02/26/96	0.2				5.0	1.3	-0.1	12.6	91	2				30	23	3	
308	03/25/96	0.2				5.1	1.3	-0.3	12.5	93	3				30	29	0	
368	04/08/96	0.2				5.2	1.3	-0.1	12.2	94	4				30	34	0	
428	04/22/96	0.2				4.9	1.0	-0.4	11.6	96	7				30	37	0	
510	05/06/96	0.2	12	5.7	9.0	4.9	0.9	-0.4	12.1	102	8	24	14	0.03	30	180	1	
560	05/20/96	0.2				4.9	0.9	-0.3	11.2	99	10				30	35	0	
639	06/03/96	0.2				5.4	1.5	0.0	11.0	99	11				30	65	0	
686	06/17/96	0.2				5.4	1.5	0.1	9.0	89	15				30	30	9	
817	07/01/96	0.2				5.8	1.8	0.3	10.6	102	14				30	45	11	
860	07/15/96	0.2				4.8	1.0	-0.4	9.1	92	16				30	180	10	
993	07/29/96	0.2				5.6	1.6	0.4	9.4	93	15				28	210	20	
1041	08/12/96	0.2	10	6.2	10.2	5.7	1.7	0.6	8.7	88	16	34	17	0.05	30	80	10	
1173	08/26/96	0.2				5.7	1.7	0.5	8.6	89	17				30	230	10	
1208	09/09/96	0.2				6.0	3.1	1.9	9.0	91	16				30	210	30	
1252	09/23/96	0.3				5.8	2.5	0.7	10.3	97	13				30	500	90	
1387	10/07/96	0.2				6.0	2.4	0.7	11.4	96	8				30	83	68	
1446	10/21/96	0.3				5.0	1.2	-0.4	10.6	94	10				30	300	13	
1551	11/04/96	0.3	7	5.0	10.0	5.6	2.2	0.5	12.1	95	5	31	23	0.04	30	70	0	
1664	11/18/96	0.2				5.2	1.7	0.3	12.0	92	4				30	45	0	
1733	12/02/96	2.0				4.8	1.0	-0.7	11.6	96	7				28	110	22	
1791	12/16/96	0.2				5.1	1.4	0.0	11.6	91	5				30	43	0	
1853	12/30/96	0.2				5.0	1.4	-0.1	12.6	97	4				30	41	0	
AVG.		0.3	10	5.9	9.6	5.31	1.56	0.10	11.2	94	8	29	19	0.04	30	103	11	
MAX.		2.0	12	6.8	10.2	6.0	3.1	1.9	13.6	102	17	34	23	0.05	32	500	90	
MIN.		0.2	7	5.0	9.0	4.8	0.9	-0.7	8.6	87	0	24	14	0.03	28	6	0	

QUABBIN LABORATORY RECORDS 1996
(211B-X) CADWELL BROOK @ MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
8	01/02/96	0.2				5.9	2.4	1.1	12.4	87	1				38	40	1	4.70
50	01/16/96	0.2				6.0	2.6	1.1	12.1	83	0				40	11	2	
110	01/29/96	0.3				5.2	1.7	-0.1	13.0	89	0				38	19	1	5.78
156	02/12/96	0.3	12	6.4	11.7	5.5	2.2	0.5	14.0	96	0	30	22	0.04	35	20	0	5.12
194	02/26/96	0.3				5.3	1.9	0.2	12.0	87	2				38	19	1	5.58
309	03/25/96	0.3				5.3	1.7	0.3	13.0	94	2				38	38	5	5.17
369	04/08/96	0.3				5.6	2.1	0.7	13.1	97	3				38	32	2	5.00
429	04/22/96	0.3				5.4	1.5	0.3	11.4	96	8				38	45	0	5.30
511	05/06/96	0.3	13	7.1	7.1	5.5	1.4	0.3	11.6	100	9	29	19	0.05	38	80	1	5.40
561	05/20/96	0.2				5.5	1.7	0.4	10.9	103	13				38	40	2	5.23
640	06/03/96	0.2				6.1	3.0	1.5	10.8	98	11				33	75	7	4.57
687	06/17/96	0.2				6.0	2.2	0.7	8.9	90	16				40	31	7	4.73
818	07/01/96	0.2				6.3	3.7	2.4	10.6	102	14				40	70	39	4.49
861	07/15/96	0.2				5.4	1.6	0.2	9.0	93	17				38	200	70	5.69
994	07/29/96	0.3				6.0	2.7	1.6	9.3	92	15				33	150	10	4.70
1042	08/12/96	0.3	12	5.8	9.2	6.3	3.8	2.7	8.9	88	15	33	21	0.13	33	110	10	4.26
1174	08/26/96	0.2				6.5	5.3	4.1	8.8	91	17				37	120	10	4.24
1209	09/09/96	0.2				6.4	5.3	4.0	9.2	93	16				35	220	40	4.17
1253	09/23/96	0.4				6.2	3.0	1.5	10.3	97	13				33	450	210	5.22
1388	10/07/96	0.2				6.4	4.8	3.2	11.4	92	6				38	80	4	4.38
1447	10/21/96	0.3				5.6	2.2	0.6	10.4	92	10				45	400	15	
1552	11/04/96	0.3	8	8.5	11.7	6.0	2.6	1.0	11.7	90	4	34	25	0.06	40	50	0	4.72
1665	11/18/96	0.2				5.6	1.6	0.2	12.4	92	3				38	12	1	5.00
1734	12/02/96	2.2				5.2	1.9	0.0	12.0	99	7				32	200	54	6.68
1792	12/16/96	0.2				5.3	1.8	0.0	12.4	92	3				38	46	1	5.58
1854	12/30/96	0.2				5.3	1.7	-0.1	12.7	97	4				35	37	1	5.42
AVG.		0.3	11	7.0	9.9	5.76	2.55	1.09	11.2	93	8	32	22	0.07	37	100	19	
MAX.		2.2	13	8.5	11.7	6.5	5.3	4.1	14.0	103	17	34	25	0.13	45	450	210	
MIN.		0.2	8	5.8	7.1	5.2	1.4	-0.1	8.8	83	0	29	19	0.04	32	11	0	

QUABBIN LABORATORY RECORDS 1996
(211A) ATHERTON BROOK AT RT. #202

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
9	01/02/96	0.2				6.0	2.5	1.4	12.4	87	1				70	35	0	
51	01/16/96	0.2				6.1	3.3	1.5	11.9	81	0				42	47	0	
111	01/29/96	0.2				5.1	1.5	0.1	12.8	90	1				38	80	69	
157	02/12/96	0.3	15	8.4	12.8	5.5	1.7	0.3	13.8	94	0	34	26	0.04	45	9	1	
195	02/26/96	0.2				5.2	1.5	0.0	12.0	87	2				38	17	0	
252	03/12/96	0.2				5.5	1.9	0.4	14.1	96	0				42	30	0	
310	03/25/96	0.2				5.5	1.6	0.2	12.8	93	2				42	35	1	
370	04/08/96	0.2				5.6	1.5	0.3	12.2	91	3				42	40	0	
430	04/22/96	0.2				5.3	1.2	0.1	11.4	94	7				40	35	0	
512	05/06/96	0.2	18	7.3	7.0	5.3	1.2	0.0	11.6	98	8	28	18	0.05	40	200	0	
562	05/20/96	0.2				5.5	1.8	0.7	11.0	102	12				40	50	0	
641	06/03/96	0.2				6.0	2.6	0.9	10.6	96	11				33	80	0	
688	06/17/96	0.2				5.9	2.8	1.3	9.0	89	15				37	90	11	
819	07/01/96	0.2				6.2	3.2	1.6	10.5	101	14				37	110	4	
862	07/15/96	0.3				5.3	1.9	0.4	8.9	92	17				33	210	60	
995	07/29/96	0.3				5.9	2.3	1.2	9.2	89	14				33	220	10	
1043	08/12/96	0.2	25	6.5	8.7	6.3	4.3	3.2	9.4	93	15	34	23	0.15	32	190	20	
1175	08/26/96	0.2				6.5	4.5	3.0	8.8	89	16				38	210	10	
1210	09/09/96	0.2				6.4	5.9	4.7	9.1	92	16				33	130	10	
1254	09/23/96	0.3				5.7	2.5	0.5	10.3	95	12				50	400	80	
1389	10/07/96	0.2				6.4	4.0	2.0	11.4	92	6				42	61	22	
1448	10/21/96	0.3				5.4	2.2	0.7	10.5	93	10				43	350	18	
1553	11/04/96	0.2	20	8.5	9.9	6.1	3.5	1.8	11.8	91	4	35	25	0.05	42	48	1	
1666	11/18/96	0.2				5.7	2.2	0.6	12.0	89	3				38	50	0	
1735	12/02/96	1.3				4.9	1.3	-0.5	11.8	95	6				33	300	90	
1793	12/16/96	0.2				5.4	1.9	0.3	11.8	91	4				40	50	3	
1855	12/30/96	0.2				5.4	2.2	0.3	12.6	94	3				33	21	5	
AVG.		0.3	20	7.7	9.6	5.71	2.48	1.00	11.2	92	7	33	23	0.07	40	115	15	
MAX.		1.3	25	8.5	12.8	6.5	5.9	4.7	14.1	102	17	35	26	0.15	70	400	90	
MIN.		0.2	15	6.5	7.0	4.9	1.2	-0.5	8.8	81	0	28	18	0.04	32	9	0	

QUABBIN LABORATORY RECORDS 1996
(212) HOP BROOK-GATE #22

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
10	01/02/96	0.3				6.6	6.5	5.2	12.5	88	1				70	28	4	
52	01/16/96	0.3				6.6	7.0	5.0	11.7	80	0				78	60	1	
112	01/29/96	0.3				6.1	3.0	1.3	13.0	91	1				72	65	8	
158	02/12/96	0.2	13	18.9	14.4	6.4	5.0	3.4	13.8	94	0	52	45	0.09	80	50	2	
196	02/26/96	0.3				6.3	3.5	1.8	12.4	87	1				78	44	3	
253	03/12/96	0.2				6.4	4.7	3.4	14.0	96	0				93	14	0	
311	03/25/96	0.2				6.5	5.1	3.8	12.7	92	2				90	60	2	
371	04/08/96	0.2				6.4	5.0	3.6	12.0	89	3				88	14	0	
431	04/22/96	0.3				6.4	4.8	3.5	11.0	93	8				85	25	10	
513	05/06/96	0.3	17	16.1	11.2	6.4	4.8	3.6	11.4	89	5	49	38	0.07	77	110	4	
563	05/20/96	0.3				6.6	5.4	4.1	10.8	102	13				80	50	10	
642	06/03/96	0.4				6.7	7.3	5.7	10.8	102	13				90	80	15	
689	06/17/96	0.4				6.6	6.3	4.5	8.9	88	15				73	100	36	
820	07/01/96	0.5				6.7	8.2	6.6	10.4	102	15				82	80	18	
863	07/15/96	0.6				6.5	5.9	4.3	8.7	90	17				65	260	30	
996	07/29/96	0.6				6.6	9.2	7.9	9.2	93	16				82	400	60	
1044	08/12/96	0.9	35	16.0	16.2	6.8	11.2	10.2	9.2	95	17	67	48	0.63	88	180	60	
1176	08/26/96	0.9				6.8	12.5	11.1	8.6	90	18				90	270	60	
1211	09/09/96	1.3				6.7	12.9	11.3	9.0	93	17				98	300	50	
1255	09/23/96	1.0				6.6	6.9	5.4	10.0	92	12				78	600	250	
1390	10/07/96	0.5				6.8	9.7	7.9	11.2	92	7				90	47	19	
1449	10/21/96	0.5				6.5	6.7	4.9	10.5	93	10				68	250	31	
1554	11/04/96	0.5	20	14.9	17.7	6.7	8.4	6.6	12.2	91	3	56	43	0.23	78	28	2	
1667	11/18/96	0.3				6.6	5.9	4.4	12.6	91	2				68	40	5	
1736	12/02/96	3.0				6.0	3.3	1.6	11.8	95	6				40	400	100	
1794	12/16/96	0.3				6.3	5.0	3.3	12.2	91	3				70	80	0	
1856	12/30/96	0.4				6.4	4.5	2.7	12.5	93	3				57	50	4	
AVG.		0.6	21	16.5	14.9	6.52	6.62	5.08	11.2	92	8	56	44	0.26	78	136	29	
MAX.		3.0	35	18.9	17.7	6.8	12.9	11.3	14.0	102	18	67	48	0.63	98	600	250	
MIN.		0.2	13	14.9	11.2	6.0	3.0	1.3	8.6	80	0	49	38	0.07	40	14	0	

QUABBIN LABORATORY RECORDS 1996
(212-X) HOP BROOK @ MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
11	01/02/96	0.2				6.7	6.1	4.7	12.6	89	1				67	50	1	
53	01/16/96	0.2				6.7	6.9	5.0	12.0	82	0				72	41	1	
113	01/29/96	0.3				6.2	3.6	2.1	13.0	91	1				68	75	13	
159	02/12/96	0.2	12	15.4	11.8	6.5	4.5	3.0	14.1	96	0	49	40	0.12	72	31	2	
312	03/25/96	0.2				6.5	4.5	3.0	12.9	93	2				82	90	4	
372	04/08/96	0.2				6.5	4.4	3.1	13.2	95	2				78	21	1	
514	05/06/96	0.3	17	14.3	8.7	6.5	4.5	3.4	11.7	90	4	46	34	0.07	72	80	1	
564	05/20/96	0.3				6.7	5.4	4.2	10.8	102	13				72	40	3	
643	06/03/96	0.3				6.8	7.5	6.0	11.0	99	11				83	65	14	
690	06/17/96	0.4				6.7	6.5	4.9	9.2	91	15				70	120	43	1.30
821	07/01/96	0.4				6.9	8.3	6.8	10.5	103	15				75	27	10	1.10
864	07/15/96	0.5				6.6	6.2	4.8	9.1	94	17				60	200	90	1.50
997	07/29/96	0.5				6.7	9.2	8.0	9.4	93	15				78	220	10	1.02
1045	08/12/96	0.5	30	13.8	17.5	6.9	11.2	10.1	9.5	96	16	60	44	0.38	80	50	10	
1177	08/26/96	0.4				7.0	11.5	10.2	8.8	91	17				82	70	10	0.70
1212	09/09/96	0.5				7.0	13.1	11.9	9.2	93	16				83	110	10	0.62
1256	09/23/96	1.0				6.8	7.3	5.9	10.4	96	12				73	800	240	1.58
1391	10/07/96	0.4				6.9	10.0	8.3	11.9	96	6				82	50	11	0.70
1450	10/21/96	0.5				6.6	6.3	4.4	10.8	95	10				63	250	30	1.30
1555	11/04/96	0.4	18	13.5	13.4	6.8	8.3	6.5	12.6	94	3	53	42	0.17	72	12	3	1.04
1668	11/18/96	0.3				6.7	6.6	5.2	12.8	93	2				63	32	1	1.30
1737	12/02/96	3.5				6.1	3.7	2.0	12.0	96	6				38	300	85	3.00
1857	12/30/96	0.4				6.5	5.0	3.4	12.7	94	3				52	41	5	1.68
AVG.		0.5	19	14.3	12.9	6.67	6.98	5.52	11.3	94	8	52	40	0.19	71	121	26	1.30
MAX.		3.5	30	15.4	17.5	7.0	13.1	11.9	14.1	103	17	60	44	0.38	83	800	240	3.00
MIN.		0.2	12	13.5	8.7	6.1	3.6	2.0	8.8	82	0	46	34	0.07	38	12	1	0.62

QUABBIN LABORATORY RECORDS 1995
(215A) WEST BR. OF FEVER BROOK--WOMENS FED.

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
12	01/02/96	0.4				5.9	3.7	2.6	12.2	86	1				68	60	3	
54	01/16/96	0.4				5.9	4.5	2.9	10.3	70	0				70	55	8	
114	01/29/96	0.5				5.4	1.9	0.3	12.4	87	1				62	24	3	
160	02/12/96	0.4	43	13.9	13.0	5.8	3.1	1.5	13.2	90	0	52	39	0.12	68	50	1	
197	02/26/96	0.3				5.7	2.6	1.0	12.2	86	1				65	50	1	
254	03/12/96	0.3				5.7	3.2	1.8	12.9	88	0				75	30	3	
313	03/25/96	0.3				5.8	2.6	1.3	12.3	89	2				70	25	1	
373	04/08/96	0.3				5.9	2.9	1.5	11.8	91	4				65	46	2	
432	04/22/96	0.4				5.8	2.3	1.2	9.4	91	14				63	100	32	
515	05/06/96	0.4	55	15.9	14.2	5.8	2.4	1.0	9.7	84	9	50	31	0.15	67	300	22	
565	05/20/96	0.4				6.0	3.1	1.8	9.3	96	17				62	60	15	
644	06/03/96	0.5				6.2	4.8	3.4	8.0	84	18				65	50	5	
691	06/17/96	0.4				5.9	3.9	2.3	7.2	80	21				55	80	12	
822	07/01/96	0.6				6.1	5.5	3.9	7.5	79	18				55	35	6	
865	07/15/96	0.6				5.6	3.6	1.8	7.1	79	21				55	280	40	
998	07/29/96	0.6				5.9	6.0	4.7	6.6	71	19				55	90	0	
1046	08/12/96	0.5	130	14.7	9.9	5.9	6.0	4.8	6.3	69	20	65	32	0.72	58	50	0	
1178	08/26/96	0.5				6.1	8.2	6.9	5.7	62	20				62	600	10	
1213	09/09/96	0.7				6.2	9.8	8.3	6.4	67	18				68	220	10	
1257	09/23/96	0.5				6.0	5.0	3.2	8.0	77	14				68	250	20	
1392	10/07/96	0.4				6.0	4.8	2.8	9.3	78	8				68	27	0	
1451	10/21/96	0.6				5.9	4.1	2.5	9.6	85	10				60	350	16	
1556	11/04/96	0.6	75	17.2	15.8	6.1	4.5	2.5	11.0	84	4	63	36	0.45	65	50	1	
1669	11/18/96	0.4				5.9	3.6	2.0	11.8	88	3				63	80	2	
1738	12/02/96	0.8				5.7	3.2	1.4	11.9	91	4				45	80	16	
1795	12/16/96	0.3				5.7	2.9	1.4	12.4	87	1				50	55	4	
1858	12/30/96	0.3				5.8	2.8	0.9	12.1	90	3				45	45	4	
AVG.		0.5	76	15.4	13.2	5.88	4.11	2.58	9.9	83	9	58	35	0.36	62	116	9	
MAX.		0.8	130	17.2	15.8	6.2	9.8	8.3	13.2	96	21	65	39	0.72	75	600	40	
MIN.		0.3	43	13.9	9.9	5.4	1.9	0.3	5.7	62	0	50	31	0.12	45	24	0	

QUABBIN LABORATORY RECORDS 1996
(215) EAST BR. OF FEVER BROOK--ON WEST RD.

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
13	01/02/96	0.4				5.7	3.1	1.7	11.8	83	1				87	50	1	
55	01/16/96	0.5				5.7	4.7	2.8	8.9	61	0				90	11	0	
115	01/29/96	0.4				5.2	1.9	0.1	11.8	83	1				58	37	3	
161	02/12/96	0.3	43	18.6	13.6	5.4	2.0	0.6	12.3	84	0	57	39	0.18	80	40	0	2.99
198	02/26/96	0.3				5.4	1.8	0.4	12.2	86	1				62	55	1	
255	03/12/96	0.3				5.5	2.0	0.7	12.4	87	1				72	12	1	2.92
314	03/25/96	0.3				5.6	1.7	0.4	11.2	87	5				68	60	2	3.00
374	04/08/96	0.4				5.6	1.8	0.7	11.4	87	4				62	85	2	2.80
433	04/22/96	0.3				5.5	1.7	0.5	8.8	85	14				73	110	2	2.98
516	05/06/96	0.4	40	16.4	10.4	5.5	1.9	0.7	9.1	80	10	48	31	0.17	70	250	3	3.00
566	05/20/96	0.5				5.5	1.9	0.8	9.0	95	18				67	100	9	2.87
645	06/03/96	0.6				5.6	2.7	1.1	7.4	76	17				80	50	3	
692	06/17/96	0.8				5.4	2.3	0.6	5.6	63	22				62	60	18	2.85
823	07/01/96	0.7				5.5	3.5	1.8	5.7	60	18				70	150	46	
866	07/15/96	0.6				5.2	2.0	0.7	6.1	68	21				42	250	60	2.98
999	07/29/96	0.5				5.3	2.5	1.0	4.9	53	20				62	110	30	2.48
1047	08/12/96	0.7	130	16.7	14.0	5.6	4.2	2.8	4.1	45	20	66	35	1.10	68	40	0	2.46
1179	08/26/96	0.8				5.7	5.8	4.4	4.0	44	20				73	110	20	2.55
1214	09/09/96	1.2				5.9	6.0	4.7	6.1	65	19				78	250	110	2.50
1258	09/23/96	0.5				5.7	3.5	1.9	7.2	69	14				85	500	90	2.74
1393	10/07/96	0.5				5.7	4.2	2.6	7.2	62	9				75	120	0	2.74
1452	10/21/96	0.5				5.6	3.1	1.2	8.7	77	10				58	450	22	
1557	11/04/96	0.5	65	18.0	16.5	5.8	4.0	2.3	9.1	71	5	63	40	0.38	72	90	1	2.80
1670	11/18/96	0.4				5.6	2.9	1.5	10.8	80	3				62	50	5	2.58
1739	12/02/96	0.8				5.7	2.5	1.0	11.6	89	4				60	90	35	
1796	12/16/96	0.3				5.5	2.2	0.5	11.6	84	2				53	85	1	2.90
1859	12/30/96	0.3				5.5	2.5	0.9	11.5	86	3				58	50	1	2.78
AVG.		0.5	70	17.4	13.6	5.55	2.90	1.42	8.9	74	10	59	36	0.46	68	121	17	2.79
MAX.		1.2	130	18.6	16.5	5.9	6.0	4.7	12.4	95	22	66	40	1.10	90	500	110	3.00
MIN.		0.3	40	16.4	10.4	5.2	1.7	0.1	4.0	44	0	48	31	0.17	42	11	0	2.46

QUABBIN LABORATORY RECORDS 1996
(216B) RAND BROOK--RT.32A

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL	ELEV. GAGE
14	01/02/96	0.5				6.7	7.7	6.4	12.4	87	1				62	150	7	
56	01/16/96	0.7				6.7	9.7	7.9	11.5	79	0				63	120	3	
116	01/29/96	0.4				6.2	4.0	2.1	13.0	89	0				42	29	1	
162	02/12/96	0.4	33	10.7	15.9	6.5	5.9	4.3	13.3	91	0	44	31	0.17	55	55	1	
199	02/26/96	0.4				6.4	5.2	3.6	13.0	91	1				47	31	5	
256	03/12/96	0.4				6.6	6.5	5.1	14.3	98	0				53	200	60	
315	03/25/96	0.4				6.6	5.4	4.1	12.5	96	4				47	25	1	
375	04/08/96	0.4				6.6	5.0	3.6	12.0	92	4				48	100	8	
434	04/22/96	0.4				6.5	4.8	3.7	10.7	99	12				47	100	12	
517	05/06/96	0.5	42	6.5	11.2	6.6	5.0	3.7	11.2	92	7	39	23	0.18	47	200	32	
567	05/20/96	0.5				6.7	5.9	4.6	10.2	103	16				48	200	20	
646	06/03/96	0.5				6.7	7.9	6.3	9.6	93	14				53	80	15	
693	06/17/96	0.7				6.8	8.6	6.9	8.6	92	19				50	90	30	
824	07/01/96	1.2				6.9	10.1	8.5	10.0	103	17				58	80	11	
867	07/15/96	0.9				6.7	9.2	7.7	8.3	92	21				45	300	110	
1000	07/29/96	0.9				6.8	9.6	8.1	8.8	92	18				52	130	10	
1048	08/12/96	1.0	60	9.2	12.5	6.8	10.8	9.6	9.2	97	18	53	28	0.50	57	60	10	
1180	08/26/96	0.9				6.9	12.2	10.9	8.6	92	19				62	130	10	
1215	09/09/96	1.2				7.0	13.0	11.7	9.2	95	17				65	100	10	
1259	09/23/96	0.9				6.9	9.9	8.0	10.0	97	14				50	500	70	
1394	10/07/96	0.8				6.9	10.4	8.5	11.2	95	8				53	36	4	
1453	10/21/96	0.7				6.6	6.7	4.9	10.6	94	10				43	400	26	
1558	11/04/96	0.5	65	8.4	17.6	6.7	8.7	7.2	12.4	95	4	50	27	0.30	50	100	0	
1671	11/18/96	0.5				6.6	7.0	5.4	12.6	91	2				50	300	2	
1740	12/02/96	1.8				6.3	5.4	3.6	12.6	98	5				42	120	27	
1797	12/16/96	0.4				6.4	6.1	4.6	12.8	95	3				45	110	4	
1860	12/30/96	0.4				6.5	5.1	3.2	13.0	97	3				42	90	5	
AVG.		0.7	50	8.7	14.3	6.65	7.62	6.08	11.2	94	9	47	27	0.29	51	142	18	
MAX.		1.8	65	10.7	17.6	7.0	13.0	11.7	14.3	103	21	53	31	0.50	65	500	110	
MIN.		0.4	33	6.5	11.2	6.2	4.0	2.1	8.3	79	0	39	23	0.17	42	25	0	

7.0 WARE RIVER TRIBUTARIES

WATER QUALITY DATA

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
WARE RIVER--@ SHAFT #8

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
24	01/09/96	0.5				6.1	4.0	2.3	13.6	93	0				70	35	0
69	01/22/96	0.6				5.7	2.7	0.8	14.1	96	0				62	50	12
128	02/05/96	0.4	47	11.9	15.6	5.7	2.9	1.2	13.9	95	0	44	30	0.17	62	30	0
166	02/20/96	0.4				5.9	3.3	1.8	13.2	90	0				70	63	0
216	03/04/96	0.3				5.9	3.4	1.7	13.2	90	0				63	22	0
266	03/18/96	0.3				5.9	2.9	1.4	13.2	90	0				60	55	1
330	04/01/96	0.3				6.1	2.6	1.1	11.8	95	6				62	110	0
392	04/16/96	0.6				5.9	2.5	1.1	12.4	100	6				62	30	0
480	04/29/96	0.5				6.1	3.0	1.6	9.9	89	11				62	40	2
529	05/13/96	0.6	55	10.4	6.8	5.9	2.5	1.3	10.3	91	10	43	29	0.27	52	250	12
609	05/28/96	1.2				6.4	5.6	3.8	8.6	87	16				68	90	10
649	06/10/96	1.2				6.2	4.7	3.1	7.8	82	18				58	600	230
790	06/24/96	1.5				6.4	5.8	4.0	9.1	99	20				68	150	16
828	07/08/96	1.7				6.5	6.8	5.2	8.1	93	23				68	100	10
964	07/22/96	1.5				6.3	5.7	3.8	9.4	102	20				67	120	10
1014	08/05/96	1.5	90	12.2	12.3	6.2	4.2	2.7	8.3	92	21	59	30	1.00	60	300	180
1146	08/19/96	1.8				6.6	6.5	5.1	8.4	93	21				82	170	10
1184	09/03/96	2.0				6.6	7.5	6.0	8.9	95	19				77	130	10
1225	09/16/96	2.2				6.6	7.3	5.7	9.3	96	17				77	70	30
1356	09/30/96	0.9				6.3	4.3	2.4	9.8	95	14				60	220	200
1412	10/15/96	0.6				6.1	3.6	1.5	10.6	94	10				63	33	16
1473	10/28/96	0.6				6.1	4.3	2.0	10.7	94	10				58	100	18
1583	11/12/96	0.5	75	11.2	9.1	5.9	3.4	1.7	11.5	90	5	44	22	0.32	53	40	16
1693	11/25/96	0.5				6.2	3.8	1.8	12.2	88	2				60	90	2
1762	12/11/96	0.4				6.1	3.7	1.4	13.3	91	0				55	75	3
1822	12/23/96	0.4				5.8	2.4	0.9	13.6	96	1				57	40	6
AVG.		0.9	67	11.4	11.0	6.13	4.21	2.52	11.0	93	10	48	28	0.44	64	116	31
MAX.		2.2	90	12.2	15.6	6.6	7.5	6.0	14.1	102	23	59	30	1.00	82	600	230
MIN.		0.3	47	10.4	6.8	5.7	2.4	0.8	7.8	82	0	43	22	0.17	52	22	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
WARE RIVER--@ SHAFT #11A

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL

Water diverted from Shaft #8 into Shaft #11A on Jan. 29, 30, and 31. No samples collected.
Water diverted from Shaft #8 into Shaft #11A on Feb. 1, 2, 3, and 4. No samples collected.

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(111)(B6) QUEEN LAKE--@ ROAD CULVERT

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
25	01/09/96	0.4				6.6	6.4	5.0	12.6	86	0				55	28	7
70	01/22/96	0.3				6.5	5.1	3.5	12.4	87	1				50	30	0
129	02/05/96	0.3	12	7.9	12.0	6.5	4.9	3.0	12.6	89	1	26	18	0.06	43	55	2
167	02/20/96	0.4				6.4	5.3	3.6	12.2	88	2				50	80	2
217	03/04/96	0.3				6.4	5.1	3.2	12.8	88	0				50	80	48
267	03/18/96	0.4				6.5	5.0	3.4	13.0	97	3				48	50	0
331	04/01/96	0.3				6.5	5.2	3.9			4				50	100	0
393	04/16/96	0.6				6.4	4.2	2.7	13.1	102	5				43	50	5
481	04/29/96	0.4				6.5	4.6	3.3	10.4	92	10				48	31	9
530	05/13/96	0.6	13	7.8	15.4	6.4	4.2	2.8	10.4	92	10	34	23	0.07	47	300	3
610	05/28/96	0.6				6.6	5.3	3.4	9.6	93	14				50	55	3
650	06/10/96	0.5				6.4	5.0	3.4	8.7	88	16				48	350	120
791	06/24/96	0.5				6.5	5.5	4.1	8.2	88	19				48	400	11
829	07/08/96	0.5				6.6	5.9	4.2	8.1	90	21				50	240	80
965	07/22/96	0.6				6.5	5.2	3.9	8.4	92	20				48	350	10
1015	08/05/96	0.5	12	8.7	12.9	6.5	5.5	4.4	8.2	93	22	32	17	0.17	48	250	10
1147	08/19/96	0.4				6.6	5.2	4.0	8.0	89	21				48	200	10
1185	09/03/96	0.6				6.6	5.4	4.0	8.4	93	21				48	180	10
1226	09/16/96	0.6				6.5	5.5	4.3	8.8	92	18				48	130	10
1357	09/30/96	0.5				6.7	6.8	5.2	9.3	92	15				48	160	4
1413	10/15/96	0.5				6.5	5.7	4.0	11.2	99	10				48	50	4
1474	10/28/96	0.4				6.6	6.2	4.2	10.2	92	11				48	45	1
1584	11/12/96	0.5	7	7.0	8.6	6.5	6.0	4.2	11.2	92	7	25	12	0.07	45	50	2
1694	11/25/96	0.4				6.6	6.3	4.7	12.3	92	3				48	65	0
1763	12/11/96	0.4				6.5	5.7	3.6	12.8	93	2				45	50	0
1823	12/23/96	0.4				6.5	5.6	4.2	12.6	89	1				45	50	3
AVG.		0.5	11	7.9	12.2	6.52	5.42	3.85	10.6	91	10	29	18	0.09	48	132	14
MAX.		0.6	13	8.7	15.4	6.7	6.8	5.2	13.1	102	22	34	23	0.17	55	400	120
MIN.		0.3	7	7.0	8.6	6.4	4.2	2.7	8.0	86	0	25	12	0.06	43	28	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(112)(B2) BURNSHIRT RIVER--@ WILLIAMSVILLE RD.

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
26	01/09/96	0.3				6.0	3.2	1.4	12.2	86	1				53	65	0
71	01/22/96	0.4				5.4	2.3	0.6	12.8	88	0				62	50	13
130	02/05/96	0.3	35	11.1	11.1	5.7	2.4	0.8	13.5	92	0	37	23	0.12	52	33	0
168	02/20/96	0.3				5.7	2.3	0.9	12.6	89	1				53	35	0
218	03/04/96	0.3				5.6	2.4	0.8	13.3	93	1				53	38	0
268	03/18/96	0.3				5.6	2.3	0.9	13.4	94	1				52	8	0
332	04/01/96	0.3				5.7	2.2	0.6			4				52	55	0
394	04/16/96	0.5				5.7	2.0	0.7	12.5	98	5				52	70	0
482	04/29/96	0.4				5.8	1.9	0.5	10.9	101	12				45	50	2
531	05/13/96	0.5	47	9.0	9.4	5.8	2.2	1.0	10.2	92	11	36	21	0.17	42	500	20
611	05/28/96	0.6				6.0	2.9	1.4	9.6	97	16				43	200	0
651	06/10/96	0.6				6.0	3.1	1.5	8.2	88	19				43	150	30
792	06/24/96	0.6				6.1	3.5	1.7	8.1	88	20				43	50	4
830	07/08/96	0.7				6.1	3.4	1.8	7.6	86	22				43	60	20
966	07/22/96	0.6				5.7	2.8	1.1	8.4	92	20				42	40	0
1016	08/05/96	0.6	100	11.2	13.6	5.9	3.2	1.7	8.0	89	21	47	17	0.70	40	30	0
1148	08/19/96	0.5				5.9	3.2	2.0	7.9	89	22				42	30	0
1186	09/03/96	0.8				6.0	4.1	2.9	7.3	78	19				43	50	10
1227	09/16/96	1.0				6.0	4.3	3.0	7.9	79	16				43	50	30
1358	09/30/96	0.6				6.1	3.9	1.9	9.4	91	14				45	40	0
1414	10/15/96	0.4				5.9	3.4	1.5	10.9	94	9				43	27	5
1475	10/28/96	0.4				5.7	3.2	1.4	10.6	96	11				42	20	2
1585	11/12/96	0.4	70	8.2	6.5	5.7	2.5	0.7	10.8	89	7	36	16	0.22	42	70	11
1695	11/25/96	0.4				5.8	2.6	0.7	11.8	88	3				42	70	0
1764	12/11/96	0.3				5.6	2.8	0.8	12.9	91	1				40	60	0
1824	12/23/96	0.3				5.4	1.7	0.4	12.6	89	1				40	75	1
AVG.		0.5	63	9.9	10.2	5.80	2.84	1.26	10.5	90	10	39	19	0.30	46	74	6
MAX.		1.0	100	11.2	13.6	6.1	4.3	3.0	13.5	101	22	47	23	0.70	62	500	30
MIN.		0.3	35	8.2	6.5	5.4	1.7	0.4	7.3	78	0	36	16	0.12	40	8	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(103)(B1) BURNSHIRT RIVER--@ RT.#62

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
27	01/09/96	0.4				5.7	3.1	1.7	12.6	86	0				52	90	0
72	01/22/96	0.5				5.4	2.0	0.6	13.4	92	0				55	46	7
131	02/05/96	0.3	35	9.2	13.0	5.5	1.8	0.2	12.8	88	0	33	23	0.10	48	50	0
169	02/20/96	0.3				5.7	2.4	0.6	13.2	90	0				52	30	0
219	03/04/96	0.3				5.6	2.4	0.8	13.6	96	1				48	39	0
269	03/18/96	0.3				5.6	1.8	0.5	15.5	109	1				48	50	4
333	04/01/96	0.3				5.8	2.1	0.9			5				48	50	0
395	04/16/96	0.5				5.6	2.2	0.5	11.8	92	5				48	45	7
483	04/29/96	0.4				5.7	2.3	0.9	10.4	92	10				45	50	0
532	05/13/96	0.5	47	9.9	7.4	5.6	1.7	0.3	10.2	90	10	38	23	0.20	42	400	4
612	05/28/96	0.6				6.0	3.0	1.1	9.8	95	14				43	150	23
652	06/10/96	0.6				5.8	2.7	0.9	8.7	90	17				42	250	20
793	06/24/96	0.7				6.1	3.2	1.8	8.1	85	18				42	100	14
831	07/08/96	0.7				6.2	4.1	2.4	7.6	84	21				42	150	20
967	07/22/96	0.6				5.7	2.9	1.5	8.2	88	19				42	100	0
1017	08/05/96	0.6	100	11.3	11.3	5.7	2.3	1.0	7.9	88	21	48	19	0.77	40	90	30
1149	08/19/96	0.6				6.1	3.0	2.0	7.9	85	19				40	160	10
1187	09/03/96	0.6				6.2	3.9	2.4	8.4	88	18				40	180	0
1228	09/16/96	0.8				6.2	4.2	2.9	8.6	85	15				42	140	10
1359	09/30/96	0.5				5.9	3.1	1.0	9.2	87	13				42	380	10
1415	10/15/96	0.3				5.8	2.7	0.9	10.6	92	9				42	30	1
1476	10/28/96	0.3				5.7	2.6	0.8	9.9	87	10				42	80	3
1586	11/12/96	0.4	65	8.1	6.4	5.6	2.9	1.0	11.0	86	5	32	13	0.25	42	100	2
1696	11/25/96	0.4				5.8	3.0	1.3	11.8	85	2				42	130	0
1765	12/11/96	0.3				5.6	2.2	0.2	12.4	87	1				40	90	3
1825	12/23/96	0.3				5.5	2.2	0.7	12.2	86	1				40	70	3
AVG.		0.5	62	9.6	9.5	5.77	2.68	1.11	10.6	89	9	38	20	0.33	44	117	7
MAX.		0.8	100	11.3	13.0	6.2	4.2	2.9	15.5	109	21	48	23	0.77	55	400	30
MIN.		0.3	35	8.1	6.4	5.4	1.7	0.2	7.6	84	0	32	13	0.10	40	30	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(115) BRIGHAM POND---@ OUTLET

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
28	01/09/96	0.4				5.9	3.6	2.0	12.7	89	1				48	70	0
73	01/22/96	0.5				5.5	2.3	0.5	12.6	86	0				50	45	5
132	02/05/96	0.3	45	8.5	12.2	5.5	2.5	0.9	12.8	88	0	35	21	0.13	42	36	2
170	02/20/96	0.3				5.5	2.3	0.8	13.0	89	0				42	8	0
220	03/04/96	0.3				5.6	2.0	0.5	13.1	92	1				42	21	0
270	03/18/96	0.3				5.7	2.1	0.5	15.0	105	1				42	36	0
334	04/01/96	0.3				5.8	2.0	0.6			4				42	55	0
396	04/16/96	0.4				5.7	2.2	0.9	11.6	93	6				42	40	2
484	04/29/96	0.5				5.8	2.0	0.8	9.8	93	13				42	25	2
533	05/13/96	0.5	65	9.2	10.2	5.8	2.5	1.1	9.6	87	11	37	19	0.18	40	350	2
613	05/28/96	0.6				6.0	3.4	1.9	8.8	89	16				42	150	10
653	06/10/96	0.7				5.9	3.3	1.9	7.8	83	19				40	400	140
794	06/24/96	0.7				6.1	4.5	2.8	7.2	80	21				42	50	11
832	07/08/96	0.8				6.3	4.5	2.6	7.4	85	23				42	90	0
968	07/22/96	0.7				6.0	4.1	2.4	7.1	79	21				40	170	10
1018	08/05/96	0.6	95	10.5	13.6	6.1	4.5	3.3	7.1	83	24	46	17	0.52	42	90	10
1150	08/19/96	0.5				6.2	4.6	3.3	7.1	82	23				42	50	30
1188	09/03/96	1.5				6.2	5.0	3.7	6.7	74	21				43	70	0
1229	09/16/96	1.2				6.1	5.2	4.0	7.2	76	18				43	20	10
1360	09/30/96	0.7				6.0	3.8	2.1	8.5	82	14				43	90	8
1416	10/15/96	0.5				5.8	3.9	2.0	10.2	80	10				45	26	15
1477	10/28/96	0.5				5.5	3.1	1.2	9.8	87	10				42	65	3
1587	11/12/96	0.6	80	7.8	7.4	5.7	3.1	1.0	10.2	84	7	39	13	0.27	42	50	16
1697	11/25/96	0.5				5.7	2.7	0.9	11.3	87	4				42	160	0
1766	12/11/96	0.4				5.5	2.7	0.8	12.6	89	1				38	120	4
1826	12/23/96	0.3				5.4	2.1	0.8	12.6	89	1				38	70	5
AVG.		0.6	71	9.0	10.9	5.82	3.23	1.67	10.1	86	10	39	18	0.28	42	91	11
MAX.		1.5	95	10.5	13.6	6.3	5.2	4.0	15.0	105	24	46	21	0.52	50	400	140
MIN.		0.3	45	7.8	7.4	5.4	2.0	0.5	6.7	74	0	35	13	0.13	38	8	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(116) ASNACOMET POND---@ OUTLET

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
29	01/09/96	0.3				6.4	3.7	2.2	11.6	84	2				38	12	0
74	01/22/96	0.3				6.3	4.2	2.9	12.0	87	2				38	8	0
133	02/05/96	0.3	10	8.6	10.2	6.2	3.4	1.9	12.6	91	2	21	14	0.06	37	4	0
171	02/20/96	0.3				6.1	3.5	1.8	12.4	90	2				38	16	0
221	03/04/96	0.3				6.2	4.3	2.6	11.8	91	4				37	33	0
271	03/18/96	0.3				6.1	3.6	2.4	13.0	100	4				33	15	0
335	04/01/96	0.3				6.2	4.0	2.7			5				37	13	0
397	04/16/96	0.4				6.3	3.8	2.4	12.5	98	5				37	9	0
485	04/29/96	0.3				6.3	3.3	2.0	10.8	98	11				37	14	0
534	05/13/96	0.3	8	5.3	10.7	6.3	3.0	1.8	10.2	94	12	26	16	0.04	37	26	0
614	05/28/96	0.3				6.5	3.6	1.8	9.7	98	16				37	29	0
654	06/10/96	0.3				6.5	3.5	1.9	9.0	98	20				37	55	4
795	06/24/96	0.3				6.5	3.2	1.9	8.4	93	21				37	9	7
969	07/22/96	0.3				6.4	3.2	2.0	8.0	90	22				35	12	1
1019	08/05/96	0.3	5	7.2	12.4	6.2	2.6	1.5	8.0	92	23	25	11	0.05	37	350	110
1361	09/30/96	0.4				6.4	3.9	2.2	8.6	87	16				35	90	0
1417	10/15/96	0.4				6.3	3.4	1.8	10.6	98	12				35	25	1
1478	10/28/96	0.4				6.4	3.8	2.0	9.8	90	12				35	10	0
1588	11/12/96	0.4	5	5.2	6.8	6.3	3.8	2.1	10.2	88	9	18	6	0.12	37	21	1
1698	11/25/96	0.4				6.3	4.3	2.7	10.3	83	6				37	23	0
1767	12/11/96	0.4				6.3	3.7	1.9	11.4	85	3				37	23	0
1827	12/23/96	0.3				6.3	3.4	1.9	12.0	89	3				37	27	0
AVG.		0.3	7	6.6	10.0	6.31	3.60	2.11	10.6	92	10	23	12	0.07	37	37	6
MAX.		0.4	10	8.6	12.4	6.5	4.3	2.9	13.0	100	23	26	16	0.12	38	350	110
MIN.		0.3	5	5.2	6.8	6.1	2.6	1.5	8.0	83	2	18	6	0.04	33	4	0

(116A) ASNACOMET POND---@ BEACH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
796	06/24/96	0.4				6.5	3.7	2.2	8.3	92	21				37	18	6
833	07/08/96	0.3				6.4	3.7	2.4	8.2	98	25				37	2	0
970	07/22/96	0.4				6.4	3.2	1.9	8.0	92	23				35	4	3
1020	08/05/96	1.5	5	7.1	12.2	6.3	3.3	2.2	7.9	92	24			0.07	37	32	22
1151	08/19/96	0.5				6.4	2.8	1.7	7.9	94	25				37	10	2
AVG.		0.6				6.40	3.34	2.08	8.1	94	24				37	13	7
MAX.		1.5				6.5	3.7	2.4	8.3	98	25				37	32	22
MIN.		0.3				6.3	2.8	1.7	7.9	92	21				35	2	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(107) WEST BR. OF WARE RIVER--@ RT. #62

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
30	01/09/96	0.4				5.7	3.7	2.2	11.2	77	0				57	120	2
75	01/22/96	0.5				5.5	2.3	0.5	12.4	85	0				58	50	6
134	02/05/96	0.3	45	12.3	13.5	5.6	2.8	1.0	12.5	86	0	39	23	0.15	50	50	1
172	02/20/96	0.3				5.6	2.7	1.1	12.2	83	0				52	80	0
222	03/04/96	0.4				5.6	2.2	0.7	12.8	88	0				50	35	0
272	03/18/96	0.3				5.7	2.2	0.8	14.3	101	1				52	60	0
336	04/01/96	0.3				5.8	2.3	0.7	11.4	89	5				50	120	1
398	04/16/96	0.4				5.8	2.1	0.8	11.4	89	5				48	90	1
486	04/29/96	0.5				5.7	2.7	1.5	8.7	79	11				48	60	2
535	05/13/96	0.5	65	10.5	12.0	5.9	2.8	1.2	9.5	86	11	41	22	0.23	45	250	4
615	05/28/96	0.8				6.0	4.3	2.7	8.2	81	15				50	200	4
655	06/10/96	0.8				5.7	3.7	2.3	5.2	55	18				45	300	90
797	06/24/96	1.3				5.9	5.1	3.3	5.7	61	19				50	220	57
834	07/08/96	1.7				6.0	6.8	5.1	4.1	46	22				52	210	60
971	07/22/96	1.2				5.8	5.3	3.8	4.6	49	19				50	200	110
1021	08/05/96	0.9	100	11.3	14.5	5.8	4.6	3.1	4.3	48	21	56	25	0.90	52	200	40
1152	08/19/96	2.3				5.9	8.4	7.2	2.2	24	19				58	400	30
1189	09/03/96	2.8				5.8	8.1	6.8	1.9	20	18				60	80	20
1230	09/16/96	3.2				5.8	7.2	5.8	2.8	28	15				60	130	20
1362	09/30/96	0.6				5.6	3.8	2.0	4.5	42	13				60	320	30
1418	10/15/96	0.4				5.6	4.3	2.5	6.3	53	8				55	50	10
1479	10/28/96	0.4				5.5	3.3	1.5	7.0	62	10				50	45	1
1589	11/12/96	0.5	80	9.6	8.0	5.6	3.4	1.4	9.0	70	5	43	16	0.33	48	80	5
1699	11/25/96	0.4				5.7	3.5	1.5	9.9	72	2				53	200	0
1768	12/11/96	0.3				5.6	3.1	1.1	11.4	80	1				48	110	2
1828	12/23/96	0.3				5.5	2.4	1.0	11.8	81	0				42	40	1
AVG.		0.8	73	10.9	12.0	5.72	3.97	2.37	8.3	67	9	45	22	0.40	52	142	19
MAX.		3.2	100	12.3	14.5	6.0	8.4	7.2	14.3	101	22	56	25	0.90	60	400	110
MIN.		0.3	45	9.6	8.0	5.5	2.1	0.5	1.9	20	0	39	16	0.15	42	35	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(108) EAST BR. OF WARE RIVER---@ NEW BOSTON

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
31	01/09/96	0.4				5.9	4.7	3.4	11.1	76	0				62	62	0
76	01/22/96	0.5				5.5	2.6	0.9	12.4	85	0				58	22	4
135	02/05/96	0.3	32	13.8	12.9	5.7	2.7	1.3	12.7	87	0	39	27	0.10	55	29	0
173	02/20/96	0.4				5.8	3.0	1.3	12.3	84	0				60	50	0
223	03/04/96	0.3				5.8	3.2	1.6	12.6	86	0				57	28	2
273	03/18/96	0.3				5.9	2.9	1.5	12.7	89	1				53	30	2
337	04/01/96	0.3				6.0	3.1	1.8	11.3	88	5				55	40	0
399	04/16/96	0.4				5.9	2.6	1.1	11.4	92	6				52	45	1
487	04/29/96	0.5				6.0	2.9	1.6	9.3	82	10				55	50	1
536	05/13/96	0.6	48	12.0	11.3	5.9	2.9	1.7	9.9	86	9	42	24	0.22	50	400	100
616	05/28/96	1.0				6.3	5.5	3.9	8.2	81	15				60	300	32
656	06/10/96	1.2				6.2	5.8	4.1	7.0	75	19				58	450	160
798	06/24/96	1.3				6.2	6.5	5.1	6.9	74	19				60	200	80
835	07/08/96	1.7				6.3	8.0	6.3	5.7	63	21				63	230	50
972	07/22/96	1.2				6.1	6.3	4.9	6.6	71	19				58	210	70
1022	08/05/96	1.2	75	12.2	14.5	6.2	5.7	4.2	6.1	68	21	55	29	0.83	60	250	110
1153	08/19/96	1.3				6.2	8.3	7.2	6.1	66	20				67	120	60
1190	09/03/96	1.3				6.3	9.1	7.8	7.0	74	18				70	90	0
1231	09/16/96	1.5				6.4	9.6	8.3	7.7	77	16				72	180	20
1363	09/30/96	0.6				6.1	5.2	3.6	8.2	77	13				60	280	100
1419	10/15/96	0.4				5.9	3.8	1.9	9.2	80	9				58	52	27
1480	10/28/96	0.4				5.9	3.3	1.2	9.1	80	10				52	50	13
1590	11/12/96	0.5	70	10.3	8.5	5.9	3.0	1.2	10.7	82	4	40	18	0.23	52	90	11
1700	11/25/96	0.4				6.1	3.7	1.9	11.9	86	2				57	120	11
1769	12/11/96	0.3				5.9	2.8	1.0	12.7	87	0				50	50	3
1829	12/23/96	0.3				5.7	2.2	0.9	12.7	89	1				48	36	18
AVG.		0.7	56	12.1	11.8	6.00	4.59	3.07	9.7	80	9	44	25	0.35	58	133	34
MAX.		1.7	75	13.8	14.5	6.4	9.6	8.3	12.7	92	21	55	29	0.83	72	450	160
MIN.		0.3	32	10.3	8.5	5.5	2.2	0.9	5.7	63	0	39	18	0.10	48	22	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(105) WARE RIVER - @ BARRE FALLS

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
338	04/01/96	0.3				5.9	2.8	1.4			7				63	90	0
400	04/16/96	0.4				5.8	2.5	1.3	11.0	88	6				60	50	3
488	04/29/96	0.6				5.9	4.0	2.7	8.6	76	10				63	40	29
537	05/13/96	0.5	75	8.9	12.0	5.7	2.5	1.1	7.9	73	12	44	23	0.33	50	250	20
617	05/28/96	1.2				6.2	5.8	3.9	8.8	87	15				70	200	14
657	06/10/96	1.2				6.1	4.6	2.8	7.2	76	18				60	250	80
799	06/24/96	1.5				6.2	7.1	5.6	7.3	78	19				73	180	28
836	07/08/96	1.8				6.4	8.4	6.8	6.7	76	22				80	150	30
973	07/22/96	1.3				6.2	7.6	6.1	6.9	72	18				77	130	20
1023	08/05/96	1.2	95	16.8	17.0	6.2	5.9	4.6	7.1	79	21	63	33	0.83	70	250	30
1154	08/19/96	1.2				6.4	9.0	7.9	7.2	81	22				110	140	30
1191	09/03/96	1.7				6.5	10.7	9.4	7.5	82	20				93	110	90
1232	09/16/96	2.0				6.5	11.4	10.0	7.8	80	17				90	40	20
1364	09/30/96	0.9				6.0	4.7	2.7	8.2	77	13				72	300	110
1420	10/15/96	0.5				5.9	4.4	2.8	10.2	86	8				72	50	17
1481	10/28/96	0.5				5.9	4.3	2.6	9.0	79	10				62	40	10
1591	11/12/96	0.5	85	12.3	9.5	5.7	4.0	2.0	9.2	72	5	50	23	0.32	58	90	13
1701	11/25/96	0.5				6.1	4.5	2.9	11.9	84	1				63	250	6
AVG.		1.0	85	12.7	12.8	6.09	5.79	4.26	8.4	79	14	52	26	0.49	71	145	31
MAX.		2.0	95	16.8	17.0	6.5	11.4	10.0	11.9	88	22	63	33	0.83	110	300	110
MIN.		0.3	75	8.9	9.5	5.7	2.5	1.1	6.7	72	1	44	23	0.32	50	40	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(104) CANESTO + NATTY BROOKS AT JUNCTION - @ RT. #62

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
32	01/09/96	0.6				6.1	3.9	2.1	12.8	88	0				60	130	0
77	01/22/96	0.5				5.6	2.0	0.7	13.0	89	0				60	50	2
136	02/05/96	0.3	32	11.4	14.9	5.6	2.2	0.4	12.8	88	0	42	31	0.15	58	35	1
174	02/20/96	0.4				5.9	3.1	1.6	13.4	92	0				58	45	0
224	03/04/96	0.3				5.8	2.4	1.1	13.8	94	0				55	47	0
274	03/18/96	0.3				5.8	2.0	0.8	15.8	111	1				52	30	0
339	04/01/96	0.3				6.0	2.7	1.3			4				52	45	1
401	04/16/96	0.5				5.8	1.9	0.6	12.4	95	4				48	70	14
489	04/29/96	0.4				6.0	2.3	1.1	11.2	92	7				52	21	4
538	05/13/96	0.5	50	10.5	9.9	5.9	2.8	1.4	11.2	95	8	41	24	0.27	50	400	23
618	05/28/96	0.9				6.4	4.4	2.7	10.4	96	12				52	250	16
658	06/10/96	1.0				6.2	4.4	2.9	9.1	92	16				50	300	90
800	06/24/96	1.5				6.4	6.3	4.7	8.8	89	16				52	150	38
837	07/08/96	2.3				6.5	6.9	5.1	8.1	87	19				52	250	140
974	07/22/96	1.5				6.4	6.0	4.4	8.5	86	16				50	110	30
1024	08/05/96	1.2	95	12.5	14.1	6.0	3.8	2.5	8.5	91	19	58	27	1.15	48	130	40
1155	08/19/96	2.0				6.4	6.3	5.1	8.5	89	18				52	170	40
1192	09/03/96	2.0				6.5	6.7	5.5	8.6	89	17				50	210	90
1233	09/16/96	2.2				6.4	6.5	5.3	9.1	88	14				52	250	50
1365	09/30/96	0.7				6.1	3.3	1.7	9.9	91	12				50	350	40
1421	10/15/96	0.5				6.0	3.4	1.5	11.6	96	7				50	60	42
1482	10/28/96	0.5				6.0	3.2	1.3	10.1	87	9				50	55	5
1592	11/12/96	0.5	65	9.3	7.9	5.9	3.0	1.0	12.1	90	3	40	20	0.33	50	85	3
1702	11/25/96	0.4				6.0	2.7	1.0	12.8	90	1				52	180	2
1770	12/11/96	0.3				5.9	3.0	1.2	13.2	90	0				50	100	4
1830	12/23/96	0.3				5.7	2.2	0.7	13.2	90	0				48	50	1
AVG.		0.8	61	10.9	11.7	6.05	3.75	2.22	11.2	91	8	45	26	0.48	52	137	26
MAX.		2.3	95	12.5	14.9	6.5	6.9	5.5	15.8	111	19	58	31	1.15	60	400	140
MIN.		0.3	32	9.3	7.9	5.6	1.9	0.4	8.1	86	0	40	20	0.15	48	21	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(109) LONGMEADOW BROOK---@ MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
33	01/09/96	0.4				6.1	9.1	7.6	7.0	48	0				135	45	0
78	01/22/96	0.5				5.8	3.5	2.1	12.3	84	0				120	21	5
137	02/05/96	0.3	32	24.9	17.4	6.0	5.8	4.3	10.2	70	0	64	53	0.12	110	6	0
175	02/20/96	0.4				6.0	5.9	4.0	9.0	62	0				132	14	4
225	03/04/96	0.3				6.0	5.8	4.2	10.5	72	0				122	38	4
275	03/18/96	0.3				6.0	5.4	4.0	10.6	75	1				108	30	1
340	04/01/96	0.3				6.2	5.6	4.1	9.2	74	6				130	50	4
402	04/16/96	0.4				6.0	3.7	2.4	10.0	80	6				85	50	7
490	04/29/96	0.7				6.2	7.9	6.6	5.2	46	10				128	24	3
539	05/13/96	0.7	50	26.0	14.6	6.2	6.0	4.5	7.2	64	10	69	51	0.35	108	300	70
619	05/28/96	1.5				6.3	10.6	8.7	4.9	48	15				135	350	44
659	06/10/96	1.2				6.2	12.9	10.9	2.0	21	18				128	350	140
801	06/24/96	0.7				6.1	10.7	9.2	2.5	26	18				133	100	42
838	07/08/96	1.7				6.2	14.8	12.9	2.5	28	21				137	100	50
975	07/22/96	1.3				6.0	12.8	11.4	1.7	18	18				140	115	50
1025	08/05/96	0.8	65	31.1	18.6	6.1	11.9	10.7	2.3	26	21	85	57	0.80	128	200	70
1156	08/19/96	1.2				6.1	15.0	13.5	2.5	27	19				150	150	20
1193	09/03/96	2.2				6.1	16.4	15.1	2.6	27	17				137	100	10
1234	09/16/96	3.0				6.0	15.7	14.2	2.8	28	15				110	70	30
1366	09/30/96	0.9				6.1	9.0	7.2	3.6	34	13				122	330	50
1422	10/15/96	0.7				6.0	7.6	5.6	5.3	45	8				150	50	12
1483	10/28/96	0.5				6.0	6.6	4.6	6.2	55	10				100	37	11
1593	11/12/96	0.6	65	21.8	13.6	6.1	5.8	3.7	8.6	66	4	65	40	0.33	98	90	4
1703	11/25/96	0.6				6.3	7.9	6.1	9.9	70	1				112	125	4
1831	12/23/96	0.3				6.0	4.6	3.2	11.6	79	0				137	60	2
AVG.		0.9	53	26.0	16.1	6.08	8.84	7.23	6.4	51	9	71	50	0.40	124	112	25
MAX.		3.0	65	31.1	18.6	6.3	16.4	15.1	12.3	84	21	85	57	0.80	150	350	140
MIN.		0.3	32	21.8	13.6	5.8	3.5	2.1	1.7	18	0	64	40	0.12	85	6	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(121) MILL BROOK---@ CHARNOCK HILL RD.

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
34	01/09/96	0.6				6.2	10.4	8.7	10.3	70	0				188	35	0
79	01/22/96	0.6				6.2	6.0	4.3	12.6	86	0				175	19	4
138	02/05/96	0.4	35	31.7	20.8	6.2	5.3	3.9	12.0	82	0	78	62	0.15	132	44	1
176	02/20/96	0.4				6.2	6.3	4.6	11.5	79	0				168	42	0
226	03/04/96	0.3				6.2	5.7	4.3	11.7	80	0				143	28	0
276	03/18/96	0.3				6.2	5.7	4.4	11.7	82	1				140	35	1
341	04/01/96	0.3				6.4	5.6	4.4	10.2	84	7				163	50	0
403	04/16/96	0.5				6.3	4.5	3.1	10.9	88	6				168	90	6
491	04/29/96	0.7				6.4	7.4	6.2	8.5	77	11				162	30	7
540	05/13/96	0.6	38	30.9	15.0	6.3	6.0	4.7	8.8	78	10	82	63	0.25	137	250	21
620	05/28/96	0.9				6.5	10.4	8.6	7.8	78	16				160	300	23
660	06/10/96	1.2				6.5	13.5	12.0	6.4	68	19				153	250	40
802	06/24/96	1.2				6.4	9.7	8.2	6.8	73	19				152	190	75
839	07/08/96	1.2				6.6	16.3	14.8	5.7	66	23				150	80	50
976	07/22/96	1.3				6.4	11.0	9.6	6.8	74	20				138	150	10
1026	08/05/96	0.9	60	34.0	19.3	6.5	11.5	10.1	6.4	72	22	94	65	0.88	140	160	20
1157	08/19/96	0.9				6.6	15.7	14.5	6.2	68	20				180	230	80
1194	09/03/96	2.8				6.8	38.7	37.2	6.1	63	17				200	110	0
1235	09/16/96	3.0				6.8	32.4	30.8	7.0	69	15				195	160	30
1367	09/30/96	0.7				6.6	12.0	10.0	8.1	78	14				172	200	80
1423	10/15/96	0.6				6.4	9.9	8.1	8.5	74	9				200	42	23
1484	10/28/96	0.5				6.3	7.8	5.9	8.6	76	10				113	16	6
1594	11/12/96	0.5	50	28.6	17.2	6.3	7.3	5.2	9.7	76	5	78	55	0.32	128	70	15
1704	11/25/96	0.5				6.4	9.8	7.8	10.2	76	3				133	110	3
1771	12/11/96	0.4				6.3	6.6	4.6	11.8	81	0				115	60	14
1832	12/23/96	0.3				6.3	6.0	4.7	12.0	84	1				148	65	3
AVG.		0.8	46	31.3	18.1	6.40	10.83	9.26	9.1	76	10	83	61	0.40	156	108	20
MAX.		3.0	60	34.0	20.8	6.8	38.7	37.2	12.6	88	23	94	65	0.88	200	300	80
MIN.		0.3	35	28.6	15.0	6.2	4.5	3.1	5.7	63	0	78	55	0.15	113	16	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
MOULTON POND - BELOW DAM

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
35	01/09/96	0.8				6.1	8.8	6.9	7.3	54	3				132	8	2
80	01/22/96	1.5				6.0	7.3	5.6	9.7	70	2				125	22	5
139	02/05/96	0.7	42	19.2	16.0	5.9	3.3	1.6	12.0	84	1	53	40	0.17	82	14	3
177	02/20/96	0.5				5.9	6.0	4.6	10.2	74	2				110	18	0
227	03/04/96	0.5				5.9	5.2	3.6	10.4	77	3				103	13	0
277	03/18/96	0.7				6.0	6.6	5.1	9.1	70	4				120	14	0
342	04/01/96	0.5				6.1	5.2	3.8	10.0	80	6				118	9	0
404	04/16/96	0.6				6.4	5.0	3.9	11.5	92	6				120	40	0
492	04/29/96	0.6				6.4	5.0	3.8	9.1	86	13				100	17	0
541	05/13/96	0.8	45	20.0	13.7	6.5	6.1	5.0	9.4	87	12	64	44	0.27	95	260	19
621	05/28/96	0.6				6.6	6.8	5.0	8.0	84	18				95	75	28
661	06/10/96	0.6				6.6	7.8	6.3	7.4	82	21				95	19	10
803	06/24/96	0.7				6.6	8.3	6.9	7.4	84	22				98	90	15
840	07/08/96	0.9				6.5	9.0	7.6	6.5	76	24				100	20	10
977	07/22/96	1.3				6.4	8.9	7.3	7.6	86	22				95	50	0
1027	08/05/96	1.5	65	22.8	17.9	6.5	9.4	7.9	7.3	84	23	73	40	0.55	97	60	0
1158	08/19/96	1.7				6.4	11.3	9.9	5.0	58	23				110	350	60
1195	09/03/96	2.0				6.2	14.2	12.5	4.5	49	20				132	50	10
1236	09/16/96	2.0				6.3	13.0	11.3	6.2	65	18				120	50	0
1368	09/30/96	1.3				6.6	10.8	9.1	8.3	82	15				100	60	0
1424	10/15/96	0.9				6.5	10.1	8.4	8.6	78	11				100	4	2
1485	10/28/96	0.8				6.3	7.7	5.8	8.6	78	11				82	36	2
1595	11/12/96	0.7	75	18.2	15.7	6.4	7.6	5.5	10.1	85	8	64	37	0.30	90	20	1
1705	11/25/96	0.7				6.4	7.8	5.7	10.8	80	3				93	35	1
1772	12/11/96	0.7				6.4	6.4	4.3	11.8	83	1				88	70	2
1833	12/23/96	0.5				6.1	5.2	3.7	12.0	87	2				112	45	0
AVG.		0.9	57	20.1	15.8	6.31	7.80	6.20	8.8	77	11	64	40	0.32	104	56	7
MAX.		2.0	75	22.8	17.9	6.6	14.2	12.5	12.0	92	24	73	44	0.55	132	350	60
MIN.		0.5	42	18.2	13.7	5.9	3.3	1.6	4.5	49	1	53	37	0.17	82	4	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(110) LONG + WHITEHALL PONDS--@ OUTLET

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
36	01/09/96	0.6				6.2	10.5	8.9	10.2	70	0				150	15	0
81	01/22/96	0.6				6.1	8.0	6.4	9.4	66	1				147	31	3
140	02/05/96	0.4	27	32.2	17.4	6.1	4.9	3.2	10.8	76	1	71	55	0.10	122	19	1
178	02/20/96	0.5				5.9	5.8	4.2	10.2	70	0				152	42	0
228	03/04/96	0.5				6.1	4.9	3.2	10.8	76	1				125	50	0
278	03/18/96	0.4				6.1	5.3	3.7	10.3	77	3				125	24	0
343	04/01/96	0.3				6.3	4.8	3.3	11.2	87	5				138	29	0
405	04/16/96	0.4				6.6	5.9	4.4	11.9	98	7				152	26	0
493	04/29/96	0.4				6.6	5.0	3.7	9.4	91	14				147	13	0
542	05/13/96	0.5	27	38.9	15.1	6.5	6.1	4.7	9.1	86	13	90	72	0.15	158	10	1
622	05/28/96	0.4				6.7	6.8	5.0	8.2	86	18				162	4	1
662	06/10/96	0.4				6.7	7.5	6.0	7.5	83	21				165	80	36
804	06/24/96	0.6				6.7	9.0	7.6	7.4	84	22				163	7	3
841	07/08/96	0.6				6.8	9.8	8.3	7.2	86	25				165	31	22
978	07/22/96	0.7				6.7	10.0	8.3	7.5	86	23				160	5	2
1028	08/05/96	0.6	37	37.1	18.6	6.7	9.8	8.4	7.7	92	25	91	70	0.50	155	12	5
1159	08/19/96	0.6				6.8	9.9	8.7	7.7	90	24				158	6	2
1196	09/03/96	0.7				6.7	10.6	9.4	7.0	81	23				158	50	0
1237	09/16/96	0.8				6.6	11.0	9.7	7.3	80	20				160	60	10
1369	09/30/96	0.7				6.7	10.1	8.6	8.2	82	16				150	30	1
1425	10/15/96	0.5				6.7	9.2	7.6	8.6	79	12				140	5	1
1486	10/28/96	0.5				6.5	8.4	6.5	8.1	75	12				108	20	3
1596	11/12/96	0.6	37	28.0	14.7	6.5	7.8	5.9	8.9	75	8	69	51	0.20	122	36	4
1706	11/25/96	0.4				6.6	8.0	6.0	10.2	74	2				127	100	0
1773	12/11/96	0.5				6.4	7.3	5.4	11.2	81	2				112	50	0
1834	12/23/96	0.4				6.3	6.5	5.1	11.2	81	2				112	27	1
AVG.		0.5	32	34.1	16.5	6.48	7.80	6.24	9.1	81	12	80	62	0.24	144	30	4
MAX.		0.8	37	38.9	18.6	6.8	11.0	9.7	11.9	98	25	91	72	0.50	165	100	36
MIN.		0.3	27	28.0	14.7	5.9	4.8	3.2	7.0	66	0	69	51	0.10	108	4	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(119) DEMON POND---@ OUTLET

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
37	01/09/96	0.4				6.7	11.0	9.3	11.4	80	1				90	48	2
82	01/22/96	0.8				6.3	6.3	4.5	12.2	86	1				90	60	24
141	02/05/96	0.6	37	15.1	16.8	6.2	4.8	3.1	12.3	86	1	46	31	0.07	72	50	2
179	02/20/96	0.5				6.0	5.5	3.7	12.2	86	1				68	22	1
229	03/04/96	0.5				6.2	7.2	5.6	10.2	76	3				78	18	3
279	03/18/96	0.4				6.3	8.1	6.5	10.2	76	3				82	20	2
344	04/01/96	0.4				6.4	7.5	6.2	10.7	86	6				80	25	0
406	04/16/96	0.5				6.7	7.6	6.1	12.0	96	6				82	25	2
494	04/29/96	0.5				6.7	7.7	6.5	9.3	86	12				80	9	1
543	05/13/96	0.6	27	14.3	14.2	6.7	8.1	6.7	9.0	83	12	50	34	0.08	80	21	16
623	05/28/96	0.8				6.8	9.9	8.1	7.2	76	18				82	80	31
663	06/10/96	1.0				6.8	10.6	9.3	6.4	71	21				82	19	8
805	06/24/96	0.7				6.8	11.3	9.6	7.1	79	21				82	40	18
842	07/08/96	0.7				6.8	11.6	10.0	6.9	82	25				82	40	20
979	07/22/96	0.7				6.7	11.5	10.1	7.1	79	21				80	7	0
1029	08/05/96	0.7	35	13.1	18.1	6.8	11.3	10.1	7.7	90	24	53	33	0.13	80	100	80
1160	08/19/96	0.5				6.9	11.7	10.5	7.1	82	23				80	110	10
1370	09/30/96	0.6				6.9	12.0	10.1	8.6	85	15				78	100	10
1426	10/15/96	0.5				6.9	12.1	10.3	8.8	80	11				80	33	8
1487	10/28/96	0.6				6.8	11.1	9.2	8.9	82	12				72	55	5
1597	11/12/96	0.6	40	11.8	14.6	6.7	10.4	8.5	9.6	79	7	45	24	0.12	72	100	32
1707	11/25/96	0.5				6.8	10.3	8.5	10.9	81	3				73	70	43
1774	12/11/96	0.5				6.7	9.6	7.7	12.0	87	2				70	50	32
1835	12/23/96	0.4				6.6	8.2	6.8	12.2	86	1				72	43	17
AVG.		0.6	35	13.6	15.9	6.63	9.39	7.79	9.6	82	10	49	31	0.10	79	48	15
MAX.		1.0	40	15.1	18.1	6.9	12.1	10.5	12.3	96	25	53	34	0.13	90	110	80
MIN.		0.4	27	11.8	14.2	6.0	4.8	3.1	6.4	71	1	45	24	0.07	68	7	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(102) PARKER BROOK--NEAR MOUTH

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
38	01/09/96	0.7				6.3	5.3	3.7	12.8	88	0				100	105	1
83	01/22/96	0.6				6.0	3.2	1.9	13.5	95	1				97	55	2
142	02/05/96	0.5	38	21.6	13.8	6.0	3.7	2.2	13.3	91	0	59	45	0.22	88	33	0
180	02/20/96	0.4				6.2	4.2	2.9	12.8	93	2				103	50	2
230	03/04/96	0.4				6.1	3.9	2.4	13.1	92	1				92	28	0
280	03/18/96	0.4				6.2	3.5	2.3	12.9	93	2				95	60	2
345	04/01/96	0.4				6.3	4.0	2.7	12.2	95	5				98	55	0
407	04/16/96	1.0				6.0	3.1	1.8	12.5	98	5				82	100	14
495	04/29/96	0.5				6.1	3.7	2.6	10.9	92	8				118	25	0
544	05/13/96	0.6	60	23.2	13.0	6.1	2.8	1.7	10.7	93	9	69	47	0.33	95	70	1
624	05/28/96	0.7				6.4	4.6	3.0	10.0	90	11				120	40	12
664	06/10/96	0.8				6.4	5.5	4.0	9.0	87	14				108	55	20
806	06/24/96	1.3				6.4	5.6	4.3	9.5	92	14				113	70	15
843	07/08/96	1.7				6.5	6.2	4.6	8.4	85	16				118	70	10
980	07/22/96	1.5				6.4	6.3	4.8	10.0	97	14				110	90	10
1030	08/05/96	1.7	75	25.1	17.4	6.4	6.2	4.8	9.0	91	16	77	56	1.00	107	140	30
1161	08/19/96	1.7				6.5	6.9	5.7	9.4	91	14				113	360	70
1197	09/03/96	1.5				6.5	7.4	6.2	9.6	93	14				113	210	10
1238	09/16/96	1.3				6.5	6.9	5.6	10.0	92	12				112	110	60
1371	09/30/96	0.8				6.5	5.5	3.9	10.3	93	11				92	350	210
1427	10/15/96	0.6				6.4	5.5	3.9	11.3	93	7				95	31	2
1488	10/28/96	0.6				6.3	4.5	2.8	10.4	92	10				78	70	44
1598	11/12/96	0.5	80	17.0	9.8	6.1	3.8	2.1	11.7	91	5	55	34	0.40	78	90	0
1708	11/25/96	0.6				6.4	4.8	3.1	12.3	92	3				100	160	0
1775	12/11/96	0.5				6.1	3.8	2.1	12.6	91	2				72	90	0
1836	12/23/96	0.4				5.9	3.3	2.0	12.6	91	2				72	55	0
AVG.		0.8	63	21.7	13.5	6.27	4.78	3.35	11.2	92	8	65	46	0.49	99	99	20
MAX.		1.7	80	25.1	17.4	6.5	7.4	6.2	13.5	98	16	77	56	1.00	120	360	210
MIN.		0.4	38	17.0	9.8	5.9	2.8	1.7	8.4	85	0	55	34	0.22	72	25	0

QUABBIN LABORATORY RECORDS 1996
WARE RIVER AND TRIBUTARIES
(N1) NATTY POND BROOK - @ HALE RD.

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
39	01/09/96	0.8				5.6	5.7	4.0	8.4	59	1				70	70	0
84	01/22/96	0.6				5.4	2.8	1.0	7.2	49	0				70	75	0
143	02/05/96	0.3	45	16.1	13.9	5.4	2.2	0.8	8.1	55	0	47	25	0.23	65	60	0
181	02/20/96	0.4				5.5	4.2	2.5	8.6	59	0				70	12	0
231	03/04/96	0.3				5.5	2.7	1.2	9.6	67	1				63	10	0
281	03/18/96	0.3				5.5	2.6	1.2	12.2	83	0				63	40	1
346	04/01/96	0.3				5.7	2.4	1.1			4				62	120	0
408	04/16/96	0.7				5.6	2.2	1.0	10.3	80	5				58	80	2
496	04/29/96	0.4				5.7	2.9	1.6	7.3	64	10				60	50	1
545	05/13/96	0.5	80	13.1	12.0	5.7	3.2	1.7	7.7	68	10	48	25	0.42	55	450	38
625	05/28/96	1.2				6.0	8.2	6.4	4.6	45	15				63	350	25
665	06/10/96	1.3				5.9	6.7	4.7	3.6	38	18				60	250	110
807	06/24/96	1.8				6.0	10.0	8.2	3.2	34	19				62	40	10
844	07/08/96	3.0				6.1	10.3	8.4	3.1	34	21				62	90	50
981	07/22/96	1.8				5.9	9.1	7.4	2.7	29	19				58	110	0
1031	08/05/96	1.5	170	12.6	14.3	5.8	6.2	4.8	3.3	36	20	65	29	1.65	53	110	20
1162	08/19/96	3.0				5.9	9.1	7.5	3.1	34	20				60	240	20
1198	09/03/96	1.5				5.9	7.6	6.3	3.9	41	18				58	200	10
1239	09/16/96	1.5				5.8	6.6	5.0	4.9	48	15				58	230	10
1372	09/30/96	0.7				5.6	4.5	2.6	4.8	44	12				52	240	40
1428	10/15/96	0.6				5.6	4.0	2.1	6.7	55	7				53	40	10
1489	10/28/96	0.5				5.5	3.7	1.9	6.3	56	10				53	100	7
1599	11/12/96	0.5	85	11.8	9.5	5.6	3.5	1.7	8.2	63	4	47	23	0.48	57	14	3
1709	11/25/96	0.5				5.6	3.4	1.8	10.1	71	1				60	125	0
1776	12/11/96	0.4				5.5	3.6	1.9	8.8	60	0				55	110	0
1837	12/23/96	0.3				5.5	2.3	1.0	10.2	70	0				53	80	1
AVG.		1.0	95	13.4	12.4	5.68	4.99	3.38	6.7	54	9	52	26	0.70	60	127	14
MAX.		3.0	170	16.1	14.3	6.1	10.3	8.4	12.2	83	21	65	29	1.65	70	450	110
MIN.		0.3	45	11.8	9.5	5.4	2.2	0.8	2.7	29	0	47	23	0.23	52	10	0

8.0 OTHER - MDC DRINKING WATER

QUABBIN LABORATORY RECORDS 1996

M.D.C. DRINKING WATER -- VISITOR CENTER DRINKING FOUNTAIN

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
64	01/19															0	0
92	01/24															0	0
201	02/27	0.6	5	7.3	42.2	7.9	31.5							0.08	122	0	0
291	03/21															0	0
379	04/11															0	0
520	05/08	1.0	5	6.2	39.8	7.9	28.7							0.13	113	0	0
669	06/11															0	0
848	07/15															0	0
1006	08/01	0.3	5	6.2	37.8	7.6	28.1							0.05	110	0	0
1217	09/10															0	0
1396	10/08															0	0
1561	11/05	0.9	5	5.0	38.6	7.8	29.1							0.12	110	0	0
1800	12/17															0	0
AVG.		0.7	5	6.2	39.6	7.8	29.4							0.10	114	0	0
MAX.		1.0	5	7.3	42.2	7.9	31.5							0.13	122	0	0
MIN.		0.3	5	5.0	37.8	7.6	28.1							0.05	110	0	0

M.D.C. DRINKING WATER @ MAIN OFFICE FOUNTAIN

65	01/19															0	0
93	01/24															0	0
202	02/27	0.9	5	7.4	40.6	7.9	31.9							0.12	123	0	0
292	03/21															0	0
380	04/11															0	0
521	05/08	0.9	5	6.3	40.1	7.9	28.8							0.13	113	0	0
670	06/11															0	0
849	07/15															0	0
1007	08/01	0.6	5	6.2	36.3	7.6	28.2							0.07	110	0	0
1218	09/10															0	0
1397	10/08															0	0
1562	11/05	0.8	5	5.2	38.5	7.8	29.5							0.12	112	0	0
1801	12/17															0	0
AVG.		0.8	5	6.3	38.9	7.8	29.6							0.11	115	0	0
MAX.		0.9	5	7.4	40.6	7.9	31.9							0.13	123	0	0
MIN.		0.6	5	5.2	36.3	7.6	28.2							0.07	110	0	0

M.D.C. DRINKING WATER -- BLACKSMITH SHOP FOUNTAIN

94	01/24															0	0
203	02/27	0.7	5	12.1	64.0	6.7	49.0							0.13	195	0	0
293	03/21															0	0
318	04/11															0	0
522	05/08	0.7	5	9.4	59.1	6.7	43.1							0.12	182	0	0
671	06/11															0	0
850	07/15															0	0
1008	08/01	1.8	7	8.8	62.3	6.7	49.5							0.22	190	0	0
1219	09/10															0	0
1398	10/08															0	0
1563	11/05	1.7	5	9.3	38.1	6.7	49.6							0.18	195	0	0
1802	12/17															0	0
AVG.		1.2	6	9.9	55.9	6.7	47.8							0.16	191	0	0
MAX.		1.8	7	12.1	64.0	6.7	49.6							0.22	195	0	0
MIN.		0.7	5	8.8	38.1	6.7	43.1							0.12	182	0	0

QUABBIN LABORATORY RECORDS 1996

M.D.C. DRINKING WATER - QUABBIN FORESTRY BLDG. TAP

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
95	01/24															0	0
204	02/27	0.2	5	7.4	32.0	6.7	27.3							0.04	105	0	0
294	03/21															0	0
382	04/11															0	0
523	05/08	0.3	5	12.0	40.2	6.8	27.0							0.05	128	0	0
672	06/11															0	0
851	07/15															0	0
1009	08/01	0.2	5	15.8	42.0	6.6	28.5							0.04	140	0	0
1220	09/10															0	0
1399	10/08															0	0
1564	11/05	0.2	5	13.3	41.6	6.7	30.7							0.04	140	0	0
1803	12/17															0	0
AVG.		0.2	5	12.1	39.0	6.7	28.4							0.04	128	0	0
MAX.		0.3	5	15.8	42.0	6.8	30.7							0.05	140	0	0
MIN.		0.2	5	7.4	32.0	6.6	27.0							0.04	105	0	0

M.D.C. DRINKING WATER - CEMETERY TAP

96	01/24															0	0
205	02/27	1.3	5	9.1	29.0	6.6	26.6							0.15	90	0	0
295	03/21															0	0
383	04/11															0	0
524	05/08	1.3	5	7.2	23.6	6.6	24.6							0.22	90	0	0
673	06/11															0	0
852	07/15															0	0
1010	08/01	0.5	5	8.5	28.2	6.5	25.5							0.12	92	0	0
1400	10/08															0	0
1565	11/05	0.7	5	12.7	13.2	6.6	25.7							0.12	102	0	0
AVG.		1.0	5	9.4	23.5	6.6	25.6							0.15	94	0	0
MAX.		1.3	5	12.7	29.0	6.6	26.6							0.22	102	0	0
MIN.		0.5	5	7.2	13.2	6.5	24.6							0.12	90	0	0

M.D.C. DRINKING WATER -- QUABBIN HILL TAP MEN

384	04/11															0	0
525	05/08	0.4	5	27.9	27.0	6.0	7.2							0.25	138	0	0
674	06/11															0	0
853	07/15															5	0
1011	08/01	12.0	15	20.4	40.8	5.7	10.0							1.10	140	0	0
1221	09/10															0	0
1401	10/08															2	0
AVG.		6.2	10	24.2	33.9	5.9	8.6							0.68	139	1	0
MAX.		12.0	15	27.9	40.8	6.0	10.0							1.10	140	5	0
MIN.		0.4	5	20.4	27.0	5.7	7.2							0.25	138	0	0

QUABBIN LABORATORY RECORDS 1996

M.D.C. DRINKING WATER -- NEW SALEM FORESTRY TAP

SAMP NO.	DATE SAMP	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
257	03/12	0.2	5	204.0	57.0	5.6	5.3							0.03	780	0	0
518	05/06	0.2	5	180.0	40.6	5.6	5.2							0.05	700	5	0
694	06/17															5	0
1001	07/29															8	0
1049	08/12	0.1	5	69.6	20.2	5.8	10.5							0.05	300	14	0
1260	09/23															25	0
AVG.		0.2	5	151.2	39.3	5.7	7.0							0.04	593	10	0
MAX.		0.2	5	204.0	57.0	5.8	10.5							0.05	780	25	0
MIN.		0.1	5	69.6	20.2	5.6	5.2							0.03	300	0	0

M.D.C. DRINKING WATER -- WARE RIVER OFFICE

234	03/04	0.7	5	73.7	137.4	7.5	40.5							0.18	400	0	0
548	05/13	1.5	5	79.3	144.9	7.7	40.5							0.20	420	0	0
982	07/22															0	0
1032	08/05	1.2	5	82.8	155.9	7.4	40.4							0.23	430	0	0
1242	09/16															0	0
1431	10/15															0	0
1602	11/12	1.5	5	84.0	161.0	7.6	42.5							0.17	450	0	0
AVG.		1.2	5	80.0	149.8	7.6	41.0							0.20	425	0	0
MAX.		1.5	5	84.0	161.0	7.7	42.5							0.23	450	0	0
MIN.		0.7	5	73.7	137.4	7.4	40.4							0.17	400	0	0

QUABBIN LABORATORY RECORDS 1996
M.D.C. DRINKING WATER -- FROM ADMINISTRATION BLDG. WELL

LOCATION	DATE SAMP	SYNTHETIC ORGANIC CONTAMINANTS (SOC) mg/L	VOLATILE ORGANIC CONTAMINANTS (VOC) ug/l	CARBAMATES	LEAD	COPPER	NITRATE
HANGER TAP	01/23/96	NOT DETECTED (ND)	NOT DETECTED (ND)	NOT DETECTED (ND)			
HANGER TAP	10/02/96						0.6
VISITOR CENTER	03/14/96				0.003	0.050	
VISITOR CENTER	10/02/96				0.001	0.040	
MAIN OFFICE	03/14/96				0.002	0.031	
MAIN OFFICE	10/02/96				0.003	0.026	
GARAGE	03/14/96				0.005	0.047	
GARAGE	10/02/96				0.008	0.044	
ENGINEERING	03/14/96				0.003	0.324	
ENGINEERING	10/02/96				0.003	0.903	
KITCHEN - EAST WING	03/14/96				0.005	0.028	
KITCHEN - EAST WING	10/02/96				0.005	0.032	

NITRATE METHOD 4500D

COPPER METHOD 200.7

LEAD METHOD 200.9

CARBAMATES METHOD 531.1

SYNTHETIC ORGANIC CONTAMINANTS METHODS - 531.1, and 504

VOLATILE ORGANIC CONTAMINANTS METHOD 524.2

QUABBIN LABORATORY RECORDS 1996
QUABBIN LABORATORY - DISTILLED WATER

3/14/96 METAL ANALYSIS - ALL BELOW DETECTION LEVELS

9.0 SPECIAL INVESTIGATIONS

QUABBIN LABORATORY RECORDS 1996
TRIBS OF 213 MIDDLE BR. OF SWIFT RIVER
BROWN'S HILL TRIBUTARY

S1(213) MIDDLE BR. SWIFT

SAMP NO.	DATE SAMP	DILUTION	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
1264	09/25	X 10	210	90
	"	X 100	300	100
1375	09/30	X 10	360	170
1405	10/10	X 10	1,100	580
1432	10/16	X 10		10
1462	10/24	X 10		50
1534	10/31	X 10		10
1566	11/05	----		11
1609	11/13	X 10		20
1678	11/20	X 10		10
1715	11/26	X 10		1,000
1747	12/05	X 10		0
1806	12/18	X 10		190
S2 - RT.122 CULVERT				
1265	09/25	X 10	TNTC	TNTC
	"	X 100	5,200	2,300
1376	09/30	X 100	3,800	3,600
1406	10/10	X 10	TNTC	TNTC
1433	10/16	X 100		100
1463	10/24	X 100		2,800
1535	10/31	X 100		100
1567	11/05	X 100		100
1610	11/13	X 100		500
1679	11/20	X 100		300
1716	11/26	X 100		13,200
1748	12/05	X 100		0
1807	12/18	X 10		200
S3 RT.202 CULVERT				
1377	09/30	X 10	400	220
1407	10/10	X 10	700	510
1434	10/16	X 10		10
1464	10/24	X 10		30
1536	10/31	X 10		0
1568	11/05	----		3
1611	11/13	X 10		20
1680	11/20	X 10		30
1717	11/26	X 10		80
1749	12/05	X 10		0
1808	12/18	X 10		180

QUABBIN LABORATORY RECORDS 1996
TRIBS OF 213 MIDDLE BR. OF SWIFT RIVER
BROWN'S HILL TRIBUTARY

S4 NORTH WEST OF RT. 202 - NEAR MDC PROPERTY LINE

SAMP NO.	DATE SAMP	DILUTION	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
1378	09/30	X 100	5,700	5,000
1408	10/10	X 10	TNTC	TNTC
1435	10/16	X 100		400
1465	10/24	X 100		5,800
1537	10/31	X 100		200
1569	11/05	X 100		100
1612	11/13	X 100		1,000
1681	11/20	X 10		510
1718	11/26	X 100		17,300
1750	12/05	X 100		0
1809	12/18	X 10		190
S5 HUNTING FARM				
1409	10/10	X 10	TNTC	TNTC
1436	10/16	X 100		1,400
1466	10/24	X 100		9,300
1538	10/31	X 100		500
1570	11/05	X 100		600
1613	11/13	X 100		700
1682	11/20	X 100		500
1719	11/26	X 100		19,000
1751	12/05	X 100		100
1810	12/18	X 10		450
S6 HUNTING FARM				
1410	10/10	X 10	TNTC	TNTC
1437	10/16	X 100		6,700
1467	10/24	X 100		21,000
1539	10/31	X 100		3,700
1571	11/05	X 100		600
1614	11/13	X 100		300
1683	11/20	X 100		2,400
1720	11/26	X 100		24,000
1752	12/05	X 100		100
1811	12/18	X 10		700
S6A HUNTING FARM				
1684	11/20	X 100		10,600
S6B HUNTING FARM				
1721	11/26	X 100		30,000
1754	12/05	X 100		400
1812	12/18	X 10		150
S7 DITCH NEAR HORSE FIELD - FAY RD.				
1411	10/10	X 10	TNTC	3,000
1468	10/24	X 100		200
1615	11/13	X 100		0
1685	11/20	X 10		30
1722	11/26	X 100		5,300
1753	12/05	X 100		0
1813	12/18	X 10		1,000

QUABBIN LABORATORY RECORDS 1996
FECAL GULL SAMPLES
COLLECTED BY B. BISHOP

QUABBIN RESERVOIR - WESTERN ARM - N.E. OF LEDGES

SAMP NO.	DATE SAMP	DEPTH M	DILUTION	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
1606	11/13	0.5	-----		18
	"	0.5	X 10		20
	"	0.5	X 100		100
1607	"	2.0	-----		25
	"	2.0	X 10		0
	"	2.0	X 100		0
1608	"	5.0	-----		20
	"	5.0	X 10		10
	"	5.0	X 100		0

FECAL GULL SAMPLES
WEST ARM OF RESERVOIR - BELOW ENFIELD CHANEL - MID RESERVOIR
COLLECTED BY S. CAMPBELL

1686	11/21	30

TURBIDITY SAMPLES - COLLECTED BY M. HOPKINSON
NATTY POND BROOK - WARE RIVER
#1 UPGRAIDIENT OF SITE N1 APPROX. 3/8 MILE-
TAKEN BELOW WHERE TRIB ENTERS THE N1 STREAM BED

DATE	TURBIDITY
10/21	0.6

#2 DOWNGRAIDIENT OF SITE N1 -
BELOW WHERE TRIB ENTERS N1 STREAMBED

10/21	60.0

#3 (N1)NATTY POND BROOK

10/21	13.0

QUABBIN LABORATORY RECORDS 1996
BOAT COVE BROOK - SPECIAL SAMPLES

SAMP NO.	DATE SAMP	SITE	DILUTION	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
61	01/18	R.O.	---	TNTC	TNTC
61	01/18	R.O.	X 10	900	780
62	01/18	S.I.	---	104	90
62	01/18	S.I.	X10	180	110
63	01/18	N.I.	---	250	7
63	01/18	N.I.	X10	300	10

MAP AVAILABLE FOR LOCATIONS

WORK BEING DONE ON WATER PIPES IN HANGER -- SPECIAL SAMPLES

SAMP NO.	DATE SAMP	SITE	TURB-IDITY	DILUTION	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
57	01/16	HANGER BATHROOM	1.0 1.0	.	0	0
58	01/16	BOILER ROOM TAP			0	0

QUABBIN LABORATORY RECORDS 1996
GIARDIA RELATED INFORMATION
201 - C.V.A.

SAMP NO.	DATE SAMP	TURB-IDITY	pH	TEMP. DEG.C.	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	FECAL
289	03/20	0.3	6.40	2	42	3	0
319	03/26	0.2	6.43	2	40	1	0
320	03/27	0.2	6.43	2	42	7	0
321	03/27	0.3	6.42	2	42	1	0
354	04/03	0.3	6.45	3	42	4	0
378	04/10			3			
440	04/24	0.3	6.44	5	42	2	1
500	05/01	0.3	6.54	7	42	3	0
550	05/15	0.3	6.50	8	42	5	0
630	05/30	0.3	6.60	9	42	1	0
676	06/12	0.3	6.50	10	42	1	0
810	06/26	0.3	6.60	10	42	0	0
983	07/22	0.3	6.50	11	42	7	0
1002	07/29	0.3	6.40	11	42	15	1
1050	08/12	0.3	6.40	12	42	3	0
1181	08/26	0.3	6.40	12	42	2	0
1216	09/09	0.3		12		1	0
1261	09/23	0.3		16		1	0
1395	10/07	0.3		14		0	0
1454	10/21	0.3		14		3	0
1559	11/04	0.3		12		7	0
1672	11/18	0.3		11		5	0
1741	12/02	0.3		9		9	3
1798	12/16	0.3		8		5	0

NEAR C.V.A. INTAKE BLDG. - OFF RIP RAP

631	05/30	0.3	6.60	13	42	2	0
677	06/12	0.3	6.60	16	42	1	1

BOAT COVE BROOK

414	04/17	3.0	6.68	5	38	60	28

GATES BROOK

526	05/08	0.2	4.96	8	30	60	1

WARE RIVER @ SHAFT #8

290	03/20	0.3	5.89	2	63	50	1
355	04/03	0.4	6.10	5	60	70	1
415	04/17	0.7	5.90	5	50	150	15
501	05/01	0.5	6.10	10	62	40	9
551	05/15	0.6	5.90	10	52	100	6
632	05/30	1.2	6.40	15	68	40	1
678	06/12	1.2	6.20	20	58	140	27
811	06/26	1.5	6.40	19	68	250	25

8/21/96 COPPER SULFATE WORK - STARTED BY MWRA 12:30 PM - AT WINSOR DAM - FOR CVA

FOLLOW UP H2O SAMPLING and OBSERVATION OF QUABBIN RESERVOIR AND THE SWIFT RIVER

	DATE	COLLECTOR	TIME	TEMP C	RIVER AND RES.OBSERVATIONS
AT BUBBLER	08/21/96	PD	11:55 AM	12	
AT C.V.A.			11:45 AM	12	
AT RT.9 BRIDGE			----		
AT Y POOL			12:03 PM	13	
AT BUBBLER	08/21/96	BB	3:30 PM	11	NO PROBLEMS
AT C.V.A.	"		3:38 PM	12	
AT RT.9 BRIDGE	"		3:50 PM	17	
AT BUBBLER	08/21/96	BB	10:35 PM	12	NO PROBLEMS
AT C.V.A.	"		10:44 PM	12	
AT RT.9 BRIDGE	"		10:59 PM	17	
AT BUBBLER	08/22/96	PD	7:00 AM	12	NO PROBLEMS
AT C.V.A.	"		7:05 AM	12	
AT RT.9 BRIDGE	"		7:15 AM	16	
AT BUBBLER	08/22/96	BB	3:30 PM	11	NO PROBLEMS
AT C.V.A.	"		3:35 PM	11	
AT RT.9 BRIDGE	"		3:45 PM	19	
AT BUBBLER	08/22/96	BB	10:16 PM	11	NO PROBLEMS
AT C.V.A.	"		10:20 PM	11	
AT RT.9 BRIDGE	"		10:36 PM	18	
AT BUBBLER	08/23/96	PD	9:05 AM	12	NO PROBLEMS
AT C.V.A.	"		9:00 AM	12	
AT RT.9 BRIDGE	"		9:15 AM	17	
AT BUBBLER	08/23/96	SC	3:15 PM	11	NO PROBLEMS
AT C.V.A.	"		3:25 PM	11	
AT RT.9 BRIDGE	"		3:35 PM	19	
AT BUBBLER	08/23/96	DC	10:05 PM	11	NO PROBLEMS
AT C.V.A.	"		10:15 PM	10	
AT RT.9 BRIDGE	"		10:25 PM	19	
AT BUBBLER	08/24/96	DC	7:20 AM	12	NO PROBLEMS
AT C.V.A.	"		7:30 AM	11	
AT RT.9 BRIDGE	"		7:05 AM	19	
AT BUBBLER	08/25/96	PD	9:50 AM	12	NO PROBLEMS
AT C.V.A.	"		9:55 AM	12	
AT RT.9 BRIDGE	"		9:40 AM	18	
AT BUBBLER	08/26/96	BB	12:02 PM	12	NO PROBLEMS
AT C.V.A.	"		12:07 PM	12	
AT RT.9 BRIDGE	"		12:29 PM	17	
AT BUBBLER	08/26/96	BB	3:55 PM	12	NO PROBLEMS
AT C.V.A.	"		4:03 PM	12	
AT RT.9 BRIDGE	"		3:42 PM	18	

8/21/96 COPPER SULFATE WORK - STARTED BY MWRA 12:30 PM - AT WINSOR DAM - FOR CVA

FOLLOW UP H2O SAMPLING and OBSERVATION OF QUABBIN RESERVOIR AND THE SWIFT RIVER

	DATE	COLLECTOR	TIME	TEMP C	RIVER AND RES.OBSERVATIONS
AT BUBBLER	08/27/96	PD	7:35 AM	12	NO PROBLEMS
AT C.V.A.	"		7:30 AM	12	
AT RT.9 BRIDGE	"		7:55 AM	16	
AT BUBBLER	08/27/96	SC	3:15 PM	11	NO PROBLEMS
AT C.V.A.	"		3:20 PM	11	
AT RT.9 BRIDGE	"		3:35 PM	17	
AT BUBBLER	08/28/96	DC	7:40 AM	11	NO PROBLEMS
AT C.V.A.	"		7:50 AM	11	
AT RT.9 BRIDGE	"		8:30 AM	16	
AT BUBBLER	08/29/96	PD	7:15 AM	12	NO PROBLEMS
AT C.V.A.	"		7:05 AM	12	
AT RT.9 BRIDGE	"		8:15 AM	15	
AT BUBBLER	08/30/96	PD	8:00 AM	12	NO PROBLEMS
AT C.V.A.	"		7:55 AM	12	
AT RT.9 BRIDGE	"		8:45 AM	13	
AT BUBBLER	08/31/96	PD	9:10 AM	12	NO PROBLEMS
AT C.V.A.	"		9:15 AM	12	
AT RT.9 BRIDGE	"		9:45 AM	13	
SPILLWAY CHANNEL	"		9:35 AM	21	
AT BUBBLER	09/01/96	BB	9:54 AM	12	NO PROBLEMS
AT C.V.A.	"		10:03 AM	12	
AT RT.9 BRIDGE	"		10:26 AM	13	
SPILLWAY CHANNEL	"		10:10 AM	21	
AT BUBBLER	09/02/96	BB	9:38 AM	13	NO PROBLEMS
AT C.V.A.	"		9:49 AM	14	
AT RT.9 BRIDGE	"		10:08 AM	14	
SPILLWAY CHANNEL	"		9:58 AM	18	
AT BUBBLER	09/03/96	BB	10:44 AM	12	NO PROBLEMS
AT C.V.A.	"		10:49 AM	12	
AT RT.9 BRIDGE	"		11:24 AM	13	
SPILLWAY CHANNEL	"		10:57 AM	17	
AT BUBBLER	09/04/96	PD	8:30 AM	12	NO PROBLEMS
AT C.V.A.	"		8:20 AM	12	
AT RT.9 BRIDGE	"		9:50 AM	13	
SPILLWAY CHANNEL	"		9:40 AM	22	
AT BUBBLER	09/05/96	DC	7:30 AM	12	NO PROBLEMS
AT C.V.A.	"		7:35 AM	12	
AT RT.9 BRIDGE	"		7:50 AM	13	
SPILLWAY CHANNEL	"		7:20 AM	22	
AT BUBBLER	09/06/96	PD	8:35 AM	12	NO PROBLEMS
AT C.V.A.	"		8:30 AM	12	
AT RT.9 BRIDGE	"		9:30 AM	13	
SPILLWAY CHANNEL	"		9:20 AM	21	

10.0 QUABBIN RESERVOIR STATIONS

QUABBIN LABORATORY RECORDS 1996
(202) WINSOR DAM---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
441	04/25	0.0								RES.ELEV 529.36		DEPTH TO C.V.A. INTAKE 18.81 METERS					0	0
442	"	0.5	0.3	5	6.5	9.1	6.68	4.0	2.4	12.27	97	5.74	27	17	0.04	42		
443	"	3.0					6.68			12.29	97	5.54				42		
444	"	6.0					6.66			12.34	98	5.42				43		
445	"	9.0					6.64			12.35	98	5.37				45		
446	"	12.0					6.63			12.35	98	5.28				44		
447	"	15.0					6.62			12.39	97	5.23				44		
448	"	18.0					6.62			12.36	97	5.20				43		
449	"	21.0					6.61			12.33	96	5.19				43		
450	"	24.0					6.64			12.33	96	5.15				43		
451	"	27.0					6.62			12.30	96	5.13				43		
452	"	30.0					6.62			12.32	96	5.11				43		
453	"	33.0					6.62			12.29	96	5.07				43		
454	"	36.0					6.61			12.29	96	5.02				43		
455	"	39.0	0.3	5	6.5	11.2	6.60	3.7	2.2	12.29	96	4.84	28	18	0.03	43		
456	"	40.0					6.58			12.28	96	4.80				43		
	BOTTOM	40.2	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
569	05/22	0.0								RES.ELEV 530.40		DEPTH TO C.V.A. INTAKE 19.13 METERS					1	0
570	"	0.5	0.3	5	6.6	8.3	6.72	4.0	2.7	11.16	106	13.45	24	12	0.04	43		
571	"	3.0					6.74			11.10	105	13.20				43		
572	"	6.0					6.77			11.42	104	11.51				43		
573	"	9.0					6.81			11.80	104	10.00				43		
574	"	12.0					6.82			11.80	103	9.59				43		
575	"	15.0					6.83			11.84	103	9.41				43		
576	"	18.0					6.80			11.89	103	9.00				43		
577	"	21.0					6.72			11.91	101	8.22				43		
578	"	24.0					6.69			11.95	101	7.86				43		
579	"	27.0					6.63			11.90	99	7.58				43		
580	"	30.0					6.58			11.89	99	7.30				43		
581	"	33.0					6.54			11.85	98	7.07				43		
582	"	36.0					6.52			11.82	97	6.88				43		
583	"	39.0	0.3	5	6.5	9.0	6.48	4.0	2.6	11.70	96	6.78	24	12	0.04	43		
584	"	40.0					6.46			11.70	95	6.73				43		
	BOTTOM	40.4	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
697	06/19	0.0								RES.ELEV 530.18		DEPTH TO C.V.A. INTAKE 19.06 METERS					0	0
698	"	1.0					6.70			9.00	101	21.55				42		
699	"	2.0					6.75			8.95	100	21.53				42		
700	"	3.0	0.3	5	5.8	12.3	6.77	3.9	2.4	8.91	100	21.49	32	20	0.03	42		
701	"	4.0					6.78			8.91	100	21.45				42		
702	"	5.0					6.80			9.25	103	20.85				43		
703	"	6.0					6.78			9.41	103	20.05				42		
704	"	7.0					6.77			9.78	103	18.25				43		
705	"	8.0					6.76			10.10	103	16.41				43		
706	"	9.0					6.74			10.15	101	15.55				43		
707	"	10.0					6.74			10.38	101	14.52				43		
708	"	11.0					6.73			10.79	102	13.14				43		
709	"	12.0					6.71			10.85	100	12.15				43		
710	"	13.0					6.71			11.13	101	11.17				43		
711	"	14.0					6.71			11.22	100	10.63				43		
712	"	15.0					6.70			11.36	100	10.03				43		
713	"	16.0					6.67			11.44	101	9.77				43		
714	"	17.0					6.66			11.45	100	9.50				43	(10.1)	
715	"	18.0					6.62			11.42	100	9.27				43		

CONTINUED

QUABBIN LABORATORY RECORDS 1996
(202) WINSOR DAM---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
716	06/19	19.0					6.61			11.36	98	9.18				43		
717	"	20.0					6.57			11.36	98	8.92				43		
718	"	21.0					6.55			11.37	98	8.78				43		
719	"	22.0					6.54			11.37	97	8.59				43		
720	"	23.0					6.51			11.37	97	8.51				43		
721	"	24.0					6.51			11.39	97	8.49				43		
722	"	25.0					6.48			11.28	96	8.28				43		
723	"	26.0					6.46			11.30	95	8.20				43		
724	"	27.0	0.3	5	5.7	9.4	6.44	4.2	2.7	11.28	95	8.05	32	20	0.03	43		
725	"	28.0					6.43			11.22	95	7.95				43		
726	"	29.0					6.40			11.18	94	7.82				43		
727	"	30.0					6.38			11.18	93	7.66				43		
728	"	31.0					6.36			11.09	92	7.57				43		
729	"	32.0					6.33			11.07	92	7.47				43		
730	"	33.0					6.30			10.93	91	7.30				43		
731	"	34.0					6.27			10.90	90	7.23				43		
732	"	35.0					6.27			10.92	90	7.22				43		
733	"	36.0					6.26			10.85	89	7.18				43		
734	"	37.0					6.25			10.85	89	7.17				43		
735	"	38.0					6.23			10.79	89	7.13				43		
736	"	39.0					6.23			10.73	88	7.08				43		
737	"	40.0					6.22			10.68	88	7.04				43		
738	"	41.0					6.21			10.52	87	7.04				43		
	BOTTOM	41.5		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
870	07/17	0.0								RES.ELEV 530.12		DEPTH TO C.V.A. INTAKE 19.04 METERS					3	0
871	"	1.0					6.82			8.80	99	21.86				43		
872	"	2.0					6.87			8.78	98	21.75				43		
873	"	3.0					6.87			8.76	98	21.72				43		
874	"	4.0	0.3	5	5.0	11.0	6.90	4.0	2.4	8.86	99	21.45	29	19	0.03	43		
875	"	5.0					6.89			8.86	99	21.38				43		
876	"	6.0					6.89			8.86	99	21.29				43		
877	"	7.0					6.88			8.93	99	21.00				43		
878	"	8.0					6.87			9.20	100	20.07				43		
879	"	9.0					6.86			9.85	103	18.07				44		
880	"	10.0					6.88			10.27	105	16.69				44		
881	"	11.0					6.92			10.85	106	14.40				44		
882	"	12.0					6.92			11.10	106	13.40				44		
883	"	13.0					6.89			11.13	104	12.59				44		
884	"	14.0					6.84			11.16	102	11.60				44		
885	"	15.0					6.77			11.04	101	11.38				44		
886	"	16.0					6.65			10.91	99	10.86				44		
887	"	17.0					6.55			10.79	96	10.37				44		
888	"	18.0					6.49			10.79	95	10.12				44		
889	"	19.0					6.45			10.79	95	9.99				44		
890	"	20.0					6.42			10.71	95	9.77				44		
891	"	21.0					6.40			10.75	94	9.60				44		
892	"	22.0					6.38			10.80	94	9.36				44		
893	"	23.0					6.35			10.71	93	9.20				44		
894	"	24.0					6.34			10.71	93	9.13				44		
895	"	25.0					6.33			10.67	92	9.08				44		
896	"	26.0					6.32			10.67	92	8.97				44		
897	"	27.0					6.31			10.67	92	8.78				44		
898	"	28.0	0.3	5	5.5	10.7	6.28	3.8	2.4	10.66	91	8.58	28	19	0.03	44		
899	"	29.0		(10.2)			6.26			10.59	91	8.46				44		

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QUABBIN LABORATORY RECORDS 1996
(202) WINSOR DAM---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
900	07/17	30.0					6.23			10.48	90	8.27				44		
901	"	31.0					6.21			10.40	89	8.26				44		
902	"	32.0					6.20			10.37	88	8.19				44		
903	"	33.0					6.18			10.26	87	8.04				44		
904	"	34.0					6.16			10.19	86	7.98				44		
905	"	35.0					6.13			10.06	85	7.86				44		
906	"	36.0					6.11			9.98	84	7.77				44		
907	"	37.0					6.10			9.94	83	7.74				44		
908	"	38.0					6.10			9.90	83	7.72				44		
909	"	39.0					6.09			9.90	83	7.70				44		
910	"	40.0					6.09			9.86	82	7.67				44		
911	"	41.0					6.08			9.80	82	7.64				44		
	BOTTOM	41.4	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1053	08/14	0.0								RES.ELEV 529.48		DEPTH TO C.V.A. INTAKE 18.85 METERS					0	0
1054	"	1.0					6.72			8.30	95	23.01				43		
1055	"	2.0					6.75			8.30	95	23.01				43		
1056	"	3.0					6.76			8.27	95	23.00				42		
1057	"	4.0					6.78			8.27	95	23.00				43		
1058	"	5.0	0.3	5	6.6	11.0	6.79	3.9	2.8	8.24	95	23.00	27	17	0.04	43		
1059	"	6.0					6.79			8.22	95	23.00				43		
1060	"	7.0					6.79			8.22	95	22.99				43		
1061	"	8.0					6.77			8.28	95	22.83				43		
1062	"	9.0					6.71			8.45	95	22.15				43		
1063	"	10.0					6.65			8.64	96	21.17				43		
1064	"	11.0					6.63			9.46	100	18.70				43		
1065	"	12.0					6.78			10.59	107	15.94				44		
1066	"	13.0					6.92			10.89	105	14.10				43		
1067	"	14.0					6.95			11.15	105	13.17				43		
1068	"	15.0					6.93			11.19	105	12.32				43		
1069	"	16.0					6.88			11.28	103	11.68				43		
1070	"	17.0					6.69			10.80	98	11.19				44		
1071	"	18.0					6.44			10.08	91	10.79				44		
1072	"	19.0					6.37			9.99	89	10.53				44		
1073	"	20.0					6.34			9.99	89	10.44				43		
1074	"	21.0					6.31			10.03	89	10.20				43		
1075	"	22.0					6.30			10.02	88	10.00				43		
1076	"	23.0					6.27			10.02	88	9.92				44		
1077	"	24.0					6.26			10.00	87	9.72				44		
1078	"	25.0					6.25			9.98	87	9.59				44		
1079	"	26.0					6.23			9.91	87	9.47				44		
1080	"	27.0	0.3	5	7.0	10.2	6.20	3.8	2.5	9.82	86	9.33	28	20	0.02	43		
1081	"	28.0					6.20			10.00	87	9.17				44		
1082	"	29.0					6.20			10.00	87	9.05				44		
1083	"	30.0					6.19			9.89	86	8.94				44		
1084	"	31.0					6.18			9.92	86	8.76				44		
1085	"	32.0					6.13			9.44	81	8.64				44		
1086	"	33.0					6.11			9.43	81	8.55				45		
1087	"	34.0					6.10			9.40	80	8.38				44		
1088	"	35.0					6.08			9.38	79	8.25				44		
1089	"	36.0					6.08			9.26	78	8.18				44		
1090	"	37.0					6.06			9.11	77	7.97				44		
1091	"	38.0					6.05			9.09	77	7.95				44		
1092	"	39.0					6.03			8.90	75	7.91				44		
1093	"	40.0					6.01			8.75	74	7.85				44		

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QUABBIN LABORATORY RECORDS 1996
(202) WINSOR DAM---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1094	08/14	41.0					5.98			8.37	71	7.77				44		
	BOTTOM	41.2	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1267	09/26	0.0								RES.ELEV 528.10		DEPTH TO C.V.A. INTAKE 18.43 METERS					1	1
1268	"	1.0					6.66			8.75	93	18.65				44		
1269	"	2.0					6.69			8.70	92	18.64				44		
1270	"	3.0					6.70			8.67	92	18.64				44		
1271	"	4.0					6.72			8.65	92	18.64				44		
1272	"	5.0					6.72			8.62	91	18.64				44		
1273	"	6.0					6.72			8.59	91	18.64				44		
1274	"	7.0	0.3	5	6.2	10.9	6.72	4.1	2.1	8.57	91	18.64	27	16	0.04	43		
1275	"	8.0					6.72			8.57	91	18.64				44		
1276	"	9.0					6.73			8.55	91	18.64				44		
1277	"	10.0					6.74			8.54	91	18.64				43		
1278	"	11.0					6.74			8.52	90	18.64				43		
1279	"	12.0					6.74			8.51	90	18.64				44		
1280	"	13.0					6.73			8.50	90	18.62				44		
1281	"	14.0					6.45			8.58	88	17.09				44		
1282	"	15.0					6.38			8.80	89	15.77				44		
1283	"	16.0					6.31			8.93	88	15.08				44		
1284	"	17.0					6.30			9.45	90	13.27				44		
1285	"	18.0					6.32			9.62	90	12.37				44		
1286	"	19.0					6.32			9.64	89	11.90				44		
1287	"	20.0					6.29			9.55	87	11.50				44		
1288	"	21.0					6.22			9.25	84	11.02				44		
1289	"	22.0					6.17			9.08	82	10.82				44		
1290	"	23.0					6.12			8.92	80	10.68				44		
1291	"	24.0					6.09			8.82	79	10.52				44		
1292	"	25.0					6.07			8.77	78	10.33				44		
1293	"	26.0					6.07			8.74	77	10.21				44		
1294	"	27.0					6.07			8.71	77	10.01				44		
1295	"	28.0					6.04			8.65	76	9.80				44		
1296	"	29.0	0.3	5	6.5	9.3	6.04	4.3	2.7	8.71	76	9.68	25	17	0.03	44		
1297	"	30.0					6.04			8.75	76	9.40				44		
1298	"	31.0					6.04			8.72	75	9.18				44		
1299	"	32.0					6.02			8.61	74	9.00				45		
1300	"	33.0					6.01			8.62	75	8.90				44		
1301	"	34.0					5.99			8.45	72	8.69				45		
1302	"	35.0					5.99			8.32	71	8.58				45		
1303	"	36.0					5.96			8.08	69	8.39				45		
1304	"	37.0					5.96			8.08	69	8.33				44		
1305	"	38.0					5.93			7.78	66	8.21				44		
1306	"	39.0					5.92			7.58	64	8.12				45		
1307	"	40.0					5.90			7.19	61	8.02				45		
	BOTTOM	40.5	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1497	10/30	0.0								RES.ELEV 528.39		DEPTH TO C.V.A. INTAKE 18.52 METERS					3	0
1498	"	0.5	0.3	5	5.9	7.9	6.56	4.4	2.3	9.42	90	13.42	27	15	0.04	44		
1499	"	3.0					6.55			9.38	89	13.41				44		
1500	"	6.0					6.53			9.38	89	13.38				44		
1501	"	9.0					6.52			9.36	89	13.37				44		
1502	"	12.0					6.52			9.33	89	13.35				44		
1503	"	15.0					6.51			9.31	89	13.34				44		
1504	"	18.0					6.51			9.31	89	13.33				44		
1505	"	21.0		(10.4)			6.51			9.28	89	13.31				44		

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QUABBIN LABORATORY RECORDS 1996

(202) WINSOR DAM---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1506	10/30	24.0					6.51			9.26	88	13.29				44		
1507	"	27.0					6.06			7.73	71	12.10				45		
1508	"	30.0					5.95			7.28	65	10.70				44		
1509	"	33.0					5.93			7.34	65	10.04				44		
1510	"	36.0					5.92			7.19	63	9.44				45		
1511	"	39.0	0.3	5	6.1	7.7	5.90	4.5	2.4	6.87	59	9.12	27	17	0.05	45		
1512	"	40.0					5.90			6.67	58	9.00				45		
	BOTTOM	40.2	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1616	11/14	0.0								RES.ELEV 528.97		DEPTH TO C.V.A. INTAKE 18.69 METERS					0	1
1617	"	0.5	0.3	5	6.5	10.2	6.43	4.6	2.5	9.62	88	11.51	34	23	0.05	46		
1618	"	3.0					6.41			9.61	88	11.42				46		
1619	"	6.0					6.41			9.57	87	11.37				46		
1620	"	9.0					6.39			9.57	87	11.33				46		
1621	"	12.0					6.39			9.56	87	11.31				45		
1622	"	15.0					6.39			9.52	87	11.30				45		
1623	"	18.0					6.40			9.51	86	11.25				45		
1624	"	21.0					6.40			9.51	86	11.25				45		
1625	"	24.0					6.40			9.48	86	11.23				45		
1626	"	27.0					6.40			9.48	86	11.22				45		
1627	"	30.0					6.40			9.46	86	11.22				45		
1628	"	33.0					6.40			9.47	86	11.17				45		
1629	"	36.0					6.39			9.46	86	11.01				45		
1630	"	38.0	0.3	5	6.7	9.4	6.00	4.6	2.9	7.77	69	10.30	34	24	0.05	45		
	BOTTOM	39.0	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
AVG.			0.3	5	6.2	9.9	6.46	4.1	2.5	9.96	91	11.59	28	18	0.04	44	1	0
MAX.			0.3	5	7.0	12.3	6.95	4.6	2.9	12.39	107	23.01	34	24	0.05	46	3	1
MIN.			0.3	5	5.0	7.7	5.90	3.7	2.1	6.67	58	4.80	24	12	0.02	42	0	0

QUABBIN LABORATORY RECORDS 1996
(206) SHAFT #12---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
457	04/25	0.0								RES.ELEV 529.36		DEPTH TO SHAFT 12 INTAKE 24.49 METERS					1	0
458	"	0.5	0.3	5	6.0	10.0	6.62	4.2	2.9	12.12	100	7.12	28	17	0.03	43		
459	"	3.0					6.65			12.06	99	6.88				43		
460	"	6.0					6.66			12.12	99	6.58				43		
461	"	9.0					6.68			12.18	99	6.51				44		
462	"	12.0					6.69			12.16	99	6.48				44		
463	"	15.0					6.68			12.16	99	6.38				43		
464	"	18.0					6.68			12.16	99	6.34				43		
465	"	21.0					6.68			12.14	99	6.31				43		
466	"	24.0					6.68			12.14	97	6.25				43		
467	"	26.0	0.3	5	5.9	10.2	6.68	3.6	2.3	12.11	97	6.20	28	19	0.03	44		
468	"	27.0					6.68			12.11	97	6.20				44		
	BOTTOM	27.4	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
585	05/22	0.0								RES.ELEV 530.40		DEPTH TO SHAFT 12 INTAKE 24.81 METERS					14	0
586	"	0.5	0.3	5	6.5	7.8	6.72	3.9	2.4	10.84	106	14.48	24	10	0.03	43		
587	"	3.0					6.74			10.99	105	13.53				43		
588	"	6.0					6.81			11.40	104	11.30				43		
589	"	9.0					6.82			11.72	102	9.74				43		
590	"	12.0					6.82			11.83	103	9.33				43		
591	"	15.0					6.79			11.75	102	8.88				43		
592	"	18.0					6.70			11.72	100	8.40				43		
593	"	21.0					6.59			11.56	98	7.86				43		
594	"	24.0					6.54			11.55	96	7.70				43		
595	"	26.0	0.3	5	6.5	8.4	6.51	3.9	2.7	11.55	96	7.62	24	12	0.03	43		
596	"	27.0					6.49			11.53	96	7.56				43		
	BOTTOM	27.6	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
739	06/19	0.0								RES.ELEV 530.18		DEPTH TO SHAFT 12 INTAKE 24.74 METERS					0	0
740	"	1.0					6.73			9.03	101	21.41				42		
741	"	2.0					6.78			9.01	100	21.21				42		
742	"	3.0	0.3	5	6.0	10.1	6.78	3.8	2.4	9.00	100	21.16	33	19	0.03	42		
743	"	4.0					6.82			9.26	102	20.70				42		
744	"	5.0					6.83			9.48	103	19.84				43		
745	"	6.0					6.82			9.77	104	18.50				42		
746	"	7.0					6.81			9.94	103	17.51				42		
747	"	8.0					6.76			9.98	100	16.14				42		
748	"	9.0					6.75			10.38	102	14.78				43		
749	"	10.0					6.70			10.38	100	14.23				43		
750	"	11.0					6.68			10.69	101	12.93				43		
751	"	12.0					6.66			10.93	100	11.51				43		
752	"	13.0					6.62			11.04	100	10.85				43		
753	"	14.0					6.61			11.07	99	10.41				43		
754	"	15.0					6.58			11.05	98	10.14				43		
755	"	16.0					6.55			11.08	98	9.93				43		
756	"	17.0					6.53			10.99	96	9.75				43		
757	"	18.0	0.3	5	6.0	11.8	6.49	3.9	2.4	10.98	96	9.58	33	20	0.03	43		
758	"	19.0					6.44			10.92	95	9.43				43		
759	"	20.0					6.40			10.88	94	9.12				43		
760	"	21.0					6.38			10.86	94	9.05				43		
761	"	22.0					6.36			10.85	94	8.92				43		
762	"	23.0					6.35			10.80	93	8.77				43		
763	"	24.0					6.32			10.71	92	8.56				43		
764	"	25.0					6.30			10.66	91	8.51				43		
765	"	26.0		(10.6)			6.29			10.66	91	8.48				43		

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QUABBIN LABORATORY RECORDS 1996
(206) SHAFT #12---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
766	06/19	27.0					6.26			10.56	90	8.45				43		
	BOTTOM	27.4	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
912	07/17	0.0								RES.ELEV 530.12		DEPTH TO SHAFT 12 INTAKE 24.72 METERS					1	0
913	"	1.0					6.84			8.46	97	23.05				43		
914	"	2.0					6.85			8.47	97	22.93				43		
915	"	3.0					6.86			8.46	97	22.89				43		
916	"	4.0	0.3	5	5.3	10.5	6.88	4.2	2.8	8.46	97	22.82	28	17	0.02	43		
917	"	5.0					6.88			8.46	97	22.79				43		
918	"	6.0					6.88			8.47	97	22.74				43		
919	"	7.0					6.88			8.53	97	22.50				43		
920	"	8.0					6.88			8.84	98	21.18				43		
921	"	9.0					6.88			9.33	101	19.61				43		
922	"	10.0					6.88			10.28	105	16.60				44		
923	"	11.0					6.83			10.34	104	16.00				44		
924	"	12.0					6.76			10.60	103	14.27				44		
925	"	13.0					6.74			10.72	102	13.57				44		
926	"	14.0					6.64			10.60	99	12.72				44		
927	"	15.0					6.46			10.43	95	11.42				44		
928	"	16.0					6.34			10.15	92	10.85				44		
929	"	17.0					6.28			10.08	90	10.52				44		
930	"	18.0					6.24			10.00	89	10.34				44		
931	"	19.0	0.3	5	5.5	9.2	6.22	3.8	2.5	9.95	88	10.22	29	19	0.03	44		
932	"	20.0					6.20			9.95	88	10.10				44		
933	"	21.0					6.19			9.95	88	9.91				44		
934	"	22.0					6.15			9.84	87	9.76				44		
935	"	23.0					6.14			9.76	85	9.62				44		
936	"	24.0					6.13			9.70	85	9.50				44		
937	"	25.0					6.10			9.55	83	9.35				44		
938	"	26.0					6.08			9.54	83	9.21				44		
939	"	27.0					6.07			9.47	82	9.10				44		
	BOTTOM	27.5	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1095	08/14	0.0								RES.ELEV 529.48		DEPTH TO SHAFT 12 INTAKE 24.53 METERS					1	0
1096	"	1.0					6.73			8.17	94	22.97				43		
1097	"	2.0					6.74			8.15	94	22.95				43		
1098	"	3.0					6.74			8.15	94	22.93				43		
1099	"	4.0					6.74			8.14	94	22.93				43		
1100	"	5.0	0.3	5	7.1	10.0	6.76	3.6	2.3	8.11	93	22.93	28	16	0.03	43		
1101	"	6.0					6.75			8.12	93	22.93				43		
1102	"	7.0					6.77			8.12	93	22.93				43		
1103	"	8.0					6.77			8.12	93	22.93				43		
1104	"	9.0					6.71			8.11	93	22.75				43		
1105	"	10.0					6.55			8.82	95	19.62				43		
1106	"	11.0					6.54			9.68	100	17.00				43		
1107	"	12.0					6.43			9.68	95	14.81				44		
1108	"	13.0					6.41			9.72	95	14.46				44		
1109	"	14.0					6.53			10.39	99	13.46				44		
1110	"	15.0					6.58			10.66	101	13.00				44		
1111	"	16.0					6.63			10.73	99	12.24				44		
1112	"	17.0					6.45			9.86	90	11.27				44		
1113	"	18.0					6.27			9.25	84	10.92				44		
1114	"	19.0					6.19			9.03	81	10.67				44		
1115	"	20.0	0.3	5	7.2	10.5	6.15	3.7	2.5	8.97	80	10.54	29	19	0.03	45		
1116	"	21.0					6.13			8.90	80	10.40				45		(10.7)

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QUABBIN LABORATORY RECORDS 1996
(206) SHAFT #12---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1117	08/14	22.0					6.10			8.86	79	10.30				44		
1118	"	23.0					6.10			8.82	78	10.22				45		
1119	"	24.0					6.07			8.70	77	10.08				44		
1120	"	25.0					6.06			8.59	76	9.96				44		
1121	"	26.0					6.03			8.47	74	9.74				44		
1122	"	27.0					6.02			8.22	72	9.53				44		
1123	"	28.0					6.00			8.12	71	9.45				45		
	BOTTOM	28.1		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
1308	09/26	0.0								RES.ELEV 528.10		DEPTH TO SHAFT 12 INTAKE 24.11 METERS					1	0
1309	"	1.0					6.64			8.75	92	17.96				44		
1310	"	2.0					6.65			8.71	91	17.98				44		
1311	"	3.0					6.65			8.71	91	17.98				44		
1312	"	4.0					6.66			8.70	91	17.98				43		
1313	"	5.0					6.66			8.68	91	17.96				44		
1314	"	6.0					6.66			8.66	91	17.96				44		
1315	"	7.0	0.3	5	6.0	11.0	6.66	4.4	2.8	8.66	91	17.96	27	15	0.03	44		
1316	"	8.0					6.66			8.64	91	17.97				44		
1317	"	9.0					6.65			8.63	91	17.97				44		
1318	"	10.0					6.65			8.62	91	17.98				44		
1319	"	11.0					6.65			8.60	90	17.98				44		
1320	"	12.0					6.64			8.59	90	17.97				43		
1321	"	13.0					6.63			8.58	90	17.97				43		
1322	"	14.0					6.45			8.38	86	17.15				43		
1323	"	15.0					6.30			8.30	83	16.24				44		
1324	"	16.0					6.23			8.65	85	15.24				44		
1325	"	17.0					6.20			8.99	87	14.24				44		
1326	"	18.0					6.13			8.92	83	12.60				44		
1327	"	19.0					6.08			8.85	82	11.83				44		
1328	"	20.0					6.08			8.78	80	11.64				44		
1329	"	21.0					6.05			8.52	78	11.31				44		
1330	"	22.0	0.3	5	6.5	10.1	6.01	4.4	2.7	8.32	75	11.03	26	15	0.04	45		
1331	"	23.0					6.00			8.03	73	10.78				45		
1332	"	24.0					5.96			7.92	71	10.66				45		
1333	"	25.0					5.94			7.74	69	10.53				45		
1334	"	26.0					5.94			7.66	68	10.38				45		
1335	"	27.0					5.92			7.23	65	10.30				45		
	BOTTOM	27.2		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
1513	10/30	0.0								RES.ELEV 528.39		DEPTH TO SHAFT 12 INTAKE 24.20 METERS					21	0
1514	"	0.5	0.3	5	6.0	7.8	6.51	4.4	2.7	9.57	90	13.09	27	14	0.04	44		
1515	"	3.0					6.50			9.57	90	13.10				44		
1516	"	6.0					6.50			9.53	90	13.12				44		
1517	"	9.0					6.49			9.49	90	13.13				44		
1518	"	12.0					6.49			9.46	89	13.13				44		
1519	"	15.0					6.48			9.45	89	13.13				44		
1520	"	18.0					6.48			9.45	89	13.13				44		
1521	"	21.0					6.48			9.40	89	13.13				44		
1522	"	24.0					6.44			9.14	86	13.05				45		
1523	"	27.0	0.7	7	6.1	7.6	6.00	4.6	2.8	6.96	64	12.24	27	15	0.18	45		
1524	"	28.0					5.91			6.42	59	11.65				45		
	BOTTOM	28.2		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														

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QUABBIN LABORATORY RECORDS 1996
(206) SHAFT #12---RESERVOIR

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1631	11/14	0.0								RES.ELEV 528.97		DEPTH TO SHAFT 12 INTAKE 24.37 METERS					3	0
1632	"	0.5	0.3	5	6.7	10.5	6.54	4.8	2.9	10.22	91	10.70	34	21	0.05	46		
1633	"	3.0					6.54			10.22	91	10.72				46		
1634	"	6.0					6.53			10.14	91	10.71				45		
1635	"	9.0					6.53			10.10	90	10.71				45		
1636	"	12.0					6.53			10.10	90	10.71				45		
1637	"	15.0					6.53			10.07	90	10.71				45		
1638	"	18.0					6.53			10.02	90	10.71				45		
1639	"	21.0					6.53			10.02	90	10.71				45		
1640	"	24.0					6.53			9.98	89	10.72				45		
1641	"	27.0	0.3	5	6.7	10.5	6.53	4.0	2.2	9.98	89	10.72	33	21	0.05	45		
1642	"	28.0					6.55			9.98	89	10.71				45		
	BOTTOM	28.2	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
AVG.			0.3	5	6.3	9.8	6.50	4.1	2.6	9.71	92	13.28	29	17	0.04	44	5	0
MAX.			0.7	7	7.2	11.8	6.88	4.8	2.9	12.18	106	23.05	34	21	0.18	46	21	0
MIN.			0.3	5	5.3	7.6	5.91	3.6	2.2	6.42	59	6.20	24	10	0.02	42	0	0

QUABBIN LABORATORY RECORDS 1996
DEN HILL---(RESERVOIR)

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
469	04/25	0.0											RES. ELEV. 529.36				8	0
470	"	0.5	0.4	15	6.9	11.0	6.46	3.7	2.3	11.00	97	10.24	34	23	0.07	47		
471	"	3.0					6.47			11.25	97	9.25				47		
472	"	6.0					6.42			11.43	96	8.07				48		
473	"	9.0					6.41			11.34	96	7.98				47		
474	"	12.0					6.37			11.35	95	7.68				48		
475	"	15.0					6.33			11.29	93	6.94				48		
476	"	18.0					6.28			11.25	92	6.67				48		
477	"	19.0	0.4	15	7.1	10.5	6.27	3.7	2.3	11.22	91	6.55	34	23	0.08	48		
	BOTTOM	20.1		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
597	05/22	0.0											RES. ELEV. 530.40				2	0
598	"	0.5	0.3	12	6.6	8.2	6.58	3.8	2.5	9.92	102	17.20	30	14	0.04	46		
599	"	3.0					6.68			10.71	102	13.56				46		
600	"	6.0					6.64			10.70	99	11.94				46		
601	"	9.0					6.48			10.44	94	11.02				46		
602	"	12.0					6.33			10.40	93	10.27				46		
603	"	15.0					6.28			10.24	89	9.72				46		
604	"	18.0					6.21			10.09	88	9.31				46		
605	"	19.0	0.4	10	6.6	9.6	6.18	3.3	2.1	10.01	87	9.18	29	15	0.05	47		
606	"	20.0					6.14			9.84	85	9.09				47		
	BOTTOM	20.3		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
767	06/19	0.0											RES. ELEV. 530.18				0	0
768	"	1.0					6.78			8.87	103	23.40				44		
769	"	2.0	0.3	8	6.5	10.3	6.89	4.3	2.9	8.81	101	23.11	36	20	0.05	44		
770	"	3.0					6.82			8.80	100	22.74				44		
771	"	4.0					6.73			9.07	101	21.00				44		
772	"	5.0					6.60			9.11	99	19.80				44		
773	"	6.0					6.51			9.12	98	18.80				44		
774	"	7.0					6.42			9.15	95	17.34				44		
775	"	8.0					6.32			9.10	91	15.75				44		
776	"	9.0					6.26			9.00	89	14.84				45		
777	"	10.0					6.21			9.00	86	13.66				45		
778	"	11.0					6.15			9.15	85	12.53				45		
779	"	12.0					6.10			9.02	82	11.48				45		
780	"	13.0					6.06			8.97	81	11.06				46		
781	"	14.0	0.4	10	6.3	8.5	6.00	3.5	2.1	8.64	77	10.48	35	21	0.05	46		
782	"	15.0					5.97			8.54	76	10.37				46		
783	"	16.0					5.96			8.42	74	10.19				46		
784	"	17.0					5.95			8.50	75	10.09				46		
785	"	18.0					5.95			8.41	74	10.01				46		
786	"	19.0					5.90			8.12	71	9.72				46		
787	"	20.0					5.88			7.84	69	9.55				46		
	BOTTOM	20.4		HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.														
940	07/17	0.0											RES. ELEV. 530.12				2	0
941	"	1.0					6.68			8.05	94	23.80				44		
942	"	2.0					6.73			8.13	94	23.48				44		
943	"	3.0					6.74			8.15	95	23.37				43		
944	"	4.0	0.3	8	5.3	9.4	6.76	4.5	3.1	8.15	95	23.30	30	18	0.06	43		
945	"	5.0					6.76			8.15	94	23.10				43		
946	"	6.0					6.72			8.15	94	22.91				43		
947	"	7.0					6.66			8.10	92	22.50				43		
948	"	8.0		(10.10)			6.47			7.97	90	21.88				44		

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QUABBIN LABORATORY RECORDS 1996
DEN HILL---(RESERVOIR)

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
949	07/17	9.0					6.42			8.34	92	20.60				44		
950	"	10.0					6.20			7.43	80	19.36				44		
951	"	11.0					6.00			7.36	76	16.90				45		
952	"	12.0					5.90			6.90	68	15.00				46		
953	"	13.0					5.90			7.36	70	13.43				46		
954	"	14.0					5.89			7.08	66	12.40				47		
955	"	15.0					5.84			6.58	60	11.61				47		
956	"	16.0					5.85			7.02	64	11.25				47		
957	"	17.0	0.3	8	5.5	11.5	5.85	3.7	2.3	7.05	64	10.80	32	22	0.06	47		
958	"	18.0					5.84			7.17	64	10.63				47		
959	"	19.0					5.83			6.85	61	10.40				48		
960	"	20.0					5.81			6.68	59	10.06				48		
	BOTTOM	20.7	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1124	08/14	0.0											RES. ELEV. 529.48				0	0
1125	"	1.0					6.59			7.92	93	23.90				44		
1126	"	2.0					6.61			7.86	91	23.73				44		
1127	"	3.0					6.62			7.81	91	23.68				44		
1128	"	4.0	0.3	7	7.8	10.5	6.62	3.8	2.8	7.83	91	23.64	31	18	0.06	44		
1129	"	5.0					6.61			7.83	91	23.64				44		
1130	"	6.0					6.61			7.81	91	23.64				44		
1131	"	7.0					6.60			7.77	90	23.62				44		
1132	"	8.0					6.22			6.52	76	23.54				44		
1133	"	9.0					6.09			5.91	66	21.73				45		
1134	"	10.0					5.97			5.66	62	20.07				45		
1135	"	11.0					5.88			5.34	56	18.00				46		
1136	"	12.0					5.86			5.70	56	14.85				46		
1137	"	13.0					5.89			5.90	56	13.55				46		
1138	"	14.0					5.93			5.98	56	12.55				47		
1139	"	15.0					5.90			5.62	52	11.99				47		
1140	"	16.0					5.89			5.88	54	11.48				47		
1141	"	17.0	0.3	7	8.1	9.4	5.88	3.7	2.5	5.70	52	10.99	31	20	0.07	47		
1142	"	18.0					5.85			4.75	43	10.80				48		
1143	"	19.0					5.84			4.78	43	10.34				48		
1144	"	20.0					5.83			4.68	41	10.25				48		
	BOTTOM	20.2	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1336	09/26	0.0											RES. ELEV. 528.10				1	0
1337	"	1.0					6.53			8.27	88	18.27				44		
1338	"	2.0					6.53			8.25	87	18.28				44		
1339	"	3.0					6.53			8.25	87	18.28				44		
1340	"	4.0					6.52			8.22	87	18.29				44		
1341	"	5.0					6.51			8.16	86	18.29				44		
1342	"	6.0	0.3	7	7.3	9.7	6.51	5.0	3.4	8.14	86	18.27	28	15	0.08	44		
1343	"	7.0					6.51			8.13	86	18.26				44		
1344	"	8.0					6.51			8.12	86	18.26				45		
1345	"	9.0					6.50			8.12	86	18.26				44		
1346	"	10.0					6.49			8.09	86	18.26				45		
1347	"	11.0					6.49			8.07	86	18.26				45		
1348	"	12.0					6.38			7.77	82	18.11				45		
1349	"	13.0					5.92			5.44	55	15.81				46		
1350	"	14.0					5.80			4.95	48	14.38				46		
1351	"	15.0					5.73			4.32	41	13.00				48		
1352	"	16.0					5.72			3.41	32	12.28				48		
1353	"	17.0					5.70			3.13	29	11.58				49		

CONTINUED

QUABBIN LABORATORY RECORDS 1995
DEN HILL---(RESERVOIR)

SAMP NO.	DATE SAMP	DEPTH M	TURB-IDITY	COLOR	CHLO-RIDE	HARD-NESS	pH	ST.M. ALK.	E.P.A. ALK.	DISS OXYGEN PPM	DISS OXYGEN %SAT	TEMP. DEG.C.	RESIDUE TOTAL	RESIDUE FIXED	Fe	SPEC. COND.	COLIFORM COLONIES PER 100 ML. M.F. TOTAL	COLIFORM COLONIES PER 100 ML. M.F. FECAL
1354	09/26	18.0	0.9	13	7.3	10.0	5.69	4.8	2.9	3.09	28	11.05	32	20	0.38	49		
1355	"	19.0					5.68			2.84	25	10.60				48		
	BOTTOM	19.7	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1525	10/30	0.0											RES. ELEV. 528.39				19	1
1526	"	0.5	0.4	8	6.4	7.9	6.47	5.2	3.6	9.45	88	12.45	29	15	0.13	46		
1527	"	3.0					6.47			9.44	88	12.47				46		
1528	"	6.0					6.47			9.44	88	12.48				46		
1529	"	9.0					6.47			9.40	88	12.48				46		
1530	"	12.0					6.47			9.39	88	12.49				46		
1531	"	15.0					6.48			9.35	87	12.50				46		
1532	"	16.0	0.5	10	6.4	8.0	6.47	5.0	3.3	9.34	87	12.51	30	16	0.13	45		
1533	"	17.0					6.47			9.34	87	12.51				45		
	BOTTOM	17.5	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
1643	11/14	0.0											RES. ELEV. 528.97				2	0
1644	"	0.5	0.4	10	7.7	10.6	6.47	5.0	3.4	10.34	90	9.74	38	23	0.13	47		
1645	"	3.0					6.48			10.26	90	9.75				47		
1646	"	6.0					6.49			10.21	89	9.69				47		
1647	"	9.0					6.50			10.18	89	9.68				47		
1648	"	12.0					6.49			10.15	89	9.63				47		
1649	"	15.0					6.50			10.15	89	9.63				47		
1650	"	18.0					6.50			10.17	88	9.20				47		
1651	"	19.0	0.5	15	7.8	9.2	6.52	5.0	3.3	10.22	88	9.02	38	24	0.15	47		
	BOTTOM	19.8	HYDROLAB USED FOR -- pH, DO, TEMP., AND COND.															
AVG.			0.4	10	6.9	9.6	6.29	4.3	2.8	8.19	80	14.71	32	19	0.10	46	4	0
MAX.			0.9	15	8.1	11.5	6.89	5.2	3.6	11.43	103	23.90	38	24	0.38	49	19	1
MIN.			0.3	7	5.3	7.9	5.68	3.3	2.1	2.84	25	6.55	28	14	0.04	43	0	0

APPENDIX B

REFERENCES AND OTHER ATTACHMENTS

Boat Cove Brook
Field Survey Report
January 18, 1996

written by: Scott A. Campbell, EEI

A fecal coliform count of 250 per 100 ML detected in water sampled from the Boat Cove tributary on January 15, 1996 prompted follow-up sampling and inspections of the surrounding area on January 18. Survey results suggest that deer scat being deposited beside or within the brook itself is contributing to the elevated coliform load. In addition to deer, other wildlife activity was noted along both the abandoned beaver pond and Quabbin Reservoir shoreline. Tracks suggest possible mink, fisher, and weasel activity throughout the drainage area (muddy tracks beside beaver pond difficult to decipher, possible muskrat, however, this should be confirmed in follow-up investigations by the staff biologist). The concern with wildlife populations is their ability to carry and transmit pathogenic microorganisms through their fecal wastes into drinking water supplies. Due to the high survival rate of these organisms, particularly giardia and cryptosporidium cysts, protection of the water supply relies on extended disinfectant detention times and, to a lesser extent, the elimination of these sources within sensitive areas of the watershed. Given the close proximity of the brook to the Chicopee Valley Aqueduct (CVA) intake (within 2-1/2 miles), an aggressive wildlife monitoring and trapping program within this area to control potential sources of giardia and cyrptosporidium cysts is recommended.

FIELD SURVEY

The Boat Cove tributary runs along the southern toe of Quabbin Hill with its headwaters originating in moderately sloping terrain west of the powerline right of way (see figure attached). A small pond previously dammed by beaver is centrally located along the course of the brook. Flows north of the brook enter through three main branches referred to in this report as the northenmost inflow (NI), central inflow (comprised of numerous smaller branches), and the southernmost inflow (SI). During the time of repeat sampling, snow melt was contributing to good flows seen in both the northern and southern inflows. Samples were collected at both inflows in an attempt to isolate the fecal contamination. The central inflow was found to be stagnant and no samples were collected.

Flow exits the pond via four separate channels, two of which drain easterly and off of the watershed. The two outlets along the western portion of the pond converge into one brook prior to draining into the Quabbin Reservoir. The routine sample site is located downstream from this convergence prior to its crossing of Administration Road. During the survey, a repeat sample (RO) was collected at this location for comparison.

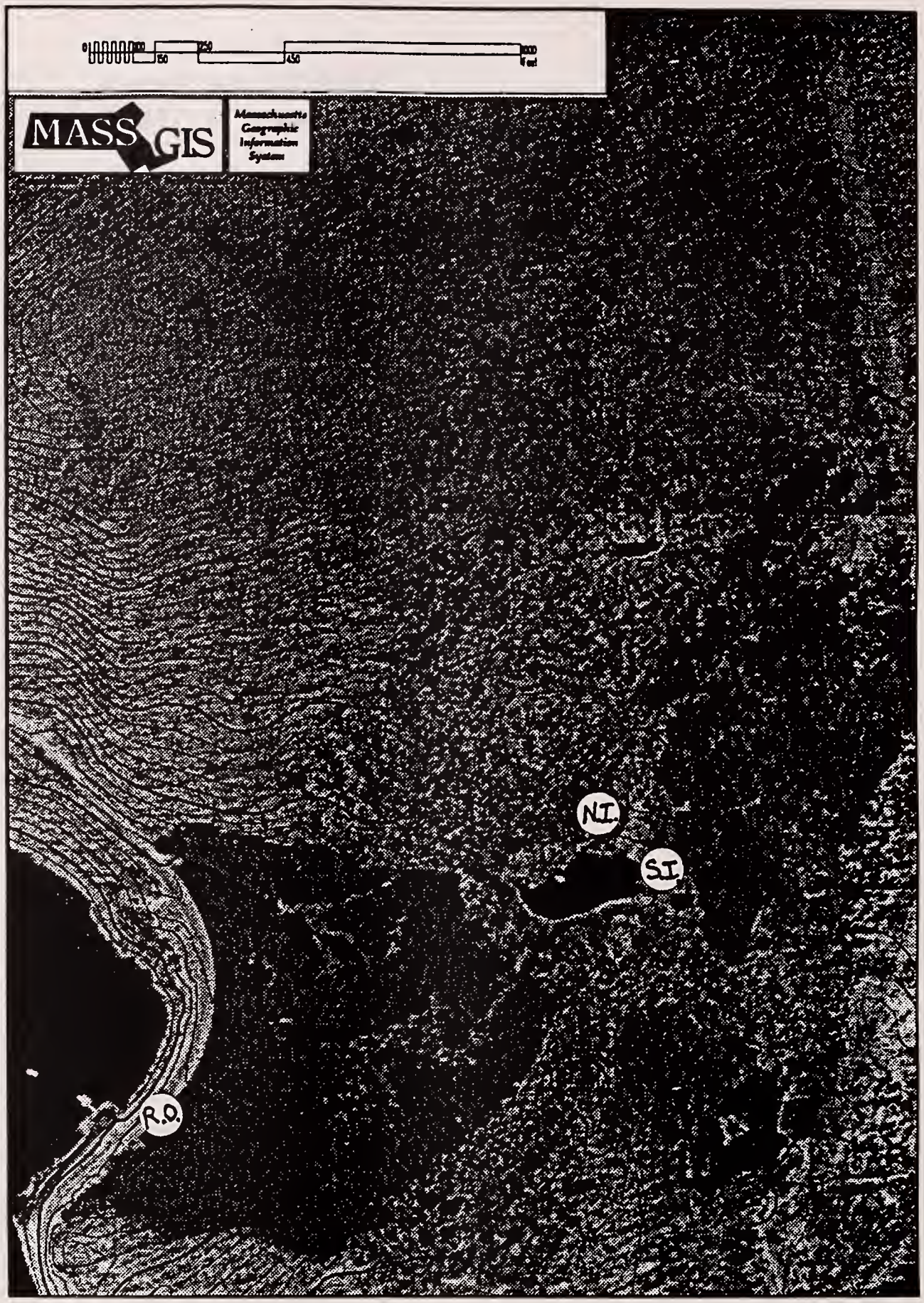

Figure 1 Boat Cove Tributary - P. Lamothe

As part of the survey, the brook was travelled up from the culvert crossing on Administration Road to the old beaver pond, where the shoreline was walked to inventory potential pollutant sources and collect water samples from feeding brooks. Field observations noted well over two dozen deer scat piles found beside or atop snow covered portions of the brook. Other signs of animal activity included numerous tracks found along the Quabbin Reservoir shoreline and at the pond adjacent to small pockets of open water. Tracks at the pond appeared to emerge from the open water as snow was found muddied. While the tracks were difficult to decipher and further investigation is recommended, it is believed that they may be ones of a resident muskrat. Tracks found along the boat cove shoreline were traced from the box culvert to an area beneath the boat dock. The tracks appeared to be those of a mink. Other accounts of mink sightings within the spillway would support this claim. There is a strong possibility that this critter may be residing beneath the dock itself. A follow-up survey by staff biologist may be advisable.

Surveys of the surrounding area revealed that a significant amount of fecal matter may be introduced into the drainage course from a variety of animal sources in this predominantly undeveloped, MDC owned watershed.

FECAL COLIFORM RESULTS

Fecal coliform results play the role as indicators of potential contamination via fecal matter of humans and animals. In studies relating to waterborne diseases, there has been no correlation found between bacteria levels and the threat of disease transmission (Miller, 1995). Thus, the goals of sampling were limited to isolating a source of bacteria and supporting observations made during the survey.

The high profile of animal life surrounding the brook makes tracking the bacteria back to a source somewhat difficult without more sophisticated testing. Field observations do suggest however that deer scat is likely to have been the primary source of the coliform contamination. Other results also identified an outside bacterial source, believed to be of animal origin, located in the southernmost drainage area (sample site SI) above the pond. Bacteria levels found entering the pond via the northern branch were typical background levels. The table below lists bacterial results. Figure 1 should be referenced for locations of sample sites.

Source of Sample	Date	Total Coliform per 100 ML M.F.	Fecal Coliform per 100 ML M.F.
Site RO (original)	1/18/96	TNTC	TNTC
Rite RO - Dilution X10	1/18/96	900	780
Site SI (Southern Inflow)	1/18/96	104	90
Site SI - Dilution X10	1/18/96	180	110
Site NI (Northern Inflow)	1/18/96	250	7
Site NI - Dilution X10	1/18/96	300	10

CLOSING REMARKS

In closing, the results of the investigation point out that a localized threat to the quality of water entering the Chicopee Valley Aqueduct exists from the wildlife activity concentrated near the brook. Laboratory tests have attempted to show the prevalence of giardia and cyrptosporidium among the animal kingdom. Among the animals believed to be impacting the brook, Table 2 shows the results of two such studies (Rose, 1994):

TABLE 2

Animal	Prevalence of Giardiasis Infection	Prevalence of Cryptosporidiosis Infection
Muskrat	33-100%	no data
Deer	no data	92%
Dogs	1.9-36%	1.4-45%

1. High prevalence in farmed deer, unknown in wild but has been documented in the roe deer, fallow deer, sika deer, mule deer, eld's deer, axis deer, and barasingha deer. All were found in diarrheic neonatal deer.

In previous studies conducted on Quabbin and Wachusett watersheds, 86% of muskrat scats collected (79/92) were positive for giardia (Summer and Fall of 1986 and 1988 UMass study on Quabbin and Wachusett), while informal investigations by Division of Watershed Management staff on two deer scats in 1994 revealed no presence of either pathogen. While the information known at this time identifies a risk, associated information is lacking to fully understand the travel of pathogens through the environment and subsequent risk to Quabbin drinking water supplies. Only through continued research on the potential for cross-transmission between species, expanded infection data on wild animals, and increased confidence in flow modeling can suppliers adequately assess the risks to water users.

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